APPENDIX E

BIOLOGICAL RESOURCE ASSESSMENT

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BIOLOGICAL RESOURCES ASSESSMENT

COLORADO LAGOON RESTORATION PROJECT

CITY OF LONG BEACH, LOS ANGELES COUNTY, CALIFORNIA

Submitted to:

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LSA Project No. CLB0702

LSA

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INTRODUCTION

LSA Associates, Inc. (LSA) conducted an assessment of biological resources associated with Colorado Lagoon (Lagoon), Marina Vista Park, and a small area of Marine Stadium (which comprise the proposed project area) in the City of Long Beach, California (City). The project area consists of an approximately 48.61-acre (ac) site in the southeast portion of the City. The Lagoon is located in a park setting and is owned and maintained as a City park by the City Department of Parks, Recreation, and Marine. This Biological Resources Assessment includes a review of literature sources, results of general surveys conducted on site, an impacts analysis, and recommendations for the proposed mitigation of significant adverse impacts, as needed. This technical information is provided for review under the California Environmental Quality Act (CEQA), the Federal Endangered Species Act (FESA), the California Endangered Species Act (CESA), and other pertinent regulations.

This biological resources assessment includes consideration of CEQA requirements, literature sources, vegetation mapping, and results of the general biological surveys conducted on site.

PROPOSED PROJECT

The City proposes to restore and remediate the Lagoon in order to provide recreational and water quality benefits, intertidal and upland habitat restoration and enhancement, as well as enhanced educational opportunities. Currently, the Lagoon suffers from degraded water quality, poor intertidal circulation, and metals-contaminated sediment deposited over many years. In the past, bacterial concentrations within the Lagoon have caused the area to be regularly closed to public access. The purpose of the Colorado Lagoon Restoration project is to improve the water quality and to restore the Lagoon's beneficial uses to the public.

PROJECT AREA LOCATION AND DESCRIPTION

The project area lies northwest of the mouth of the San Gabriel River and is north of Marine Stadium and Alamitos Bay in the City of Long Beach, County of Los Angeles, California. The project area is bounded by East 6th Street to the north, East Appian Way and East Eliot Street to the south, Park Avenue to the west, and Monrovia Avenue to the east (Figure 1). Specifically, the project area is located primarily in Section 4 of Township 5 South, at latitude 33.7710°N, longitude 118.1334°W, and Range 12 West, on the United States Geological Survey (USGS) *Long Beach, California* 7.5-minute series topographical quadrangle. The topography in the project vicinity is relatively flat with a gently sloping transition from the Lagoon waters to upland areas. The project area is dominated by the Lagoon, an 11.7 ac tidal water body[1] that is connected through an underground tidal culvert to Marine Stadium, which in turn is connected to Alamitos Bay and the Pacific Ocean.

[1] LSA Associates, Inc. used a Geographic Information System (GIS) to estimate Colorado Lagoon water body acreage based on a 2006 aerial photo; however, the water body acreage will vary with the tides.

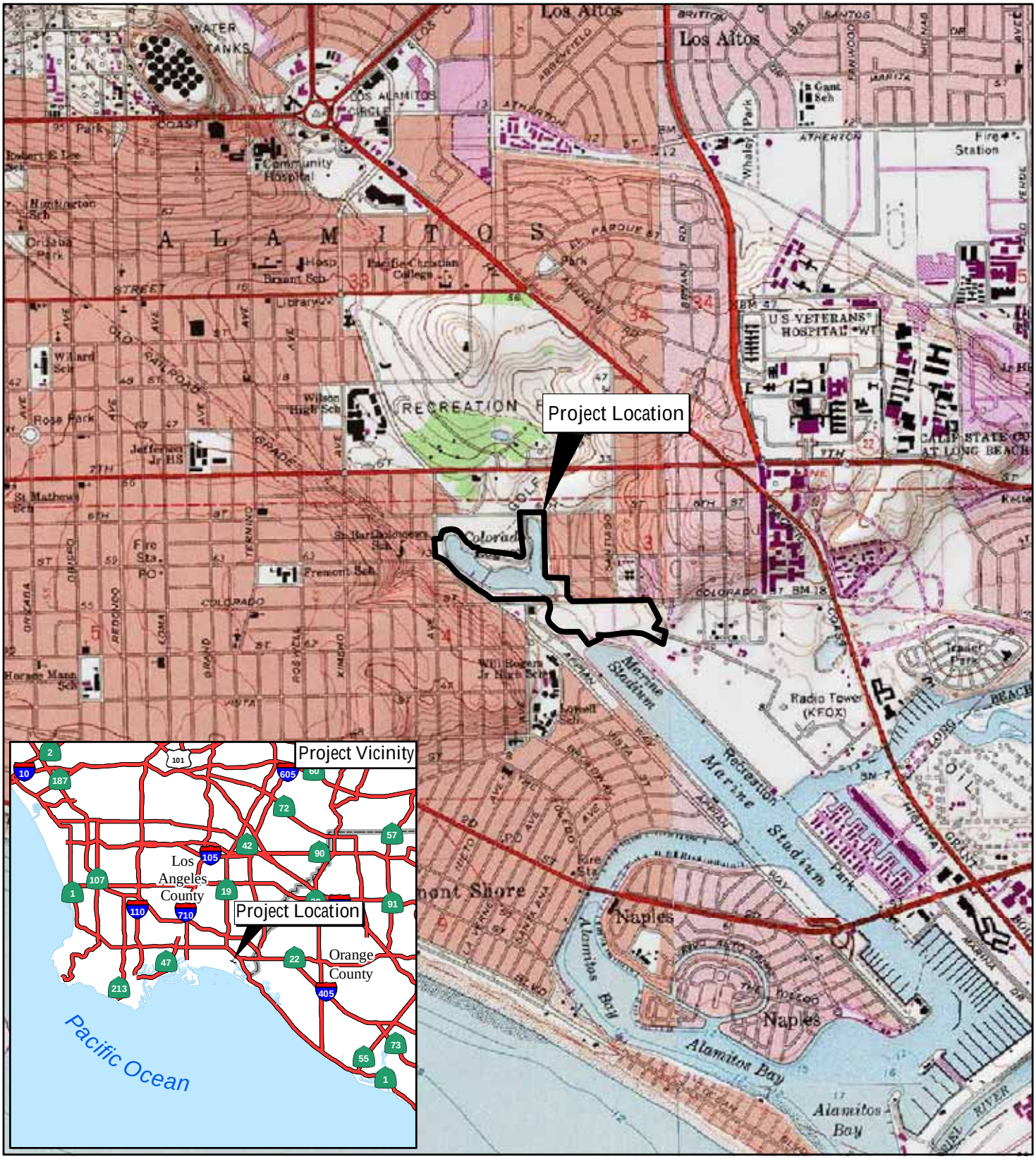

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FIGURE 1

LEGEND

Project Boundary

N

0 1,000 2,000 Feet

Colorado Lagoon Restoration Project

Project Location Map

SOURCE: USGS 7.5' QUAD - Long Beach ('81); CALIF.

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The project area historically was dominated by southern coastal salt marsh. The ecological health of the Lagoon, however, has been continuously deteriorating over several decades. The original natural plant communities have been largely eliminated or degraded. The Lagoon is a natural low point in the watershed and accumulates pollutants deposited over the entire watershed that are conveyed through storm drains by storm flows and dry weather runoff into the Lagoon. The Lagoon is listed on California's 303(d) list of impaired water bodies due to elevated levels of lead, zinc, chlordane, and polycyclic aromatic hydrocarbons (PAHs) in the sediment, and chlordane, dichloro-diphenyl-trichloroethane (DDT), dieldrin, and polychlorinated biphenyls (PCBs) in fish and mussel tissue. In addition, testing confirmed the presence of PCBs, cadmium, copper, mercury, and silver as secondary contaminants of concern. Furthermore, sediment deposition and marine growth have reduced the capacity of the culvert, resulting in a lack of tidal flushing and reduced water quality. Some isolated strands of coastal salt marsh occur around the Lagoon but they are gradually being outcompeted by nonnative invasive plants such as ice plant (*Mesenbryanthenum* spp.), Hottentot fig (*Carpobrotus edulis*), and Bermuda grass (*Cynodon dactylon*). The land uses surrounding and adjacent to the project area are predominantly residential and recreation (e.g., Recreation Park public golf course to the north). The habitat communities within the project area include southern coastal salt marsh, mudflats, open water, parks and ornamental landscaping, sandy beach, and developed habitat (Figure 2).

REGULATORY SETTING

United States Army Corps of Engineers

The United States Army Corps of Engineers (Corps) regulates discharges of dredged or fill material into waters of the United States. These waters include wetland and nonwetland bodies of water that meet specific criteria. Corps regulatory jurisdiction, pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 United States Code [USC] 403), regulates almost all work in, over, and under waters listed as "navigable waters of the U.S." Corps regulatory jurisdiction, pursuant to Section 404 of the Clean Water Act (CWA), is founded on a connection, or nexus, between the water body in question and interstate commerce. This connection may be direct, through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce, or indirect, through a nexus identified in the Corps regulations. The following definition of waters of the United States is taken from the discussion provided at 33 Code of Federal Regulations (CFR) 328.3:

> "The term waters of the United States means:
>
> (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce . . . ;
>
> (2) All interstate waters including interstate wetlands;
>
> (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams) . . . the use, degradation or destruction of which could affect interstate or foreign commerce . . . ;

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FIGURE 2

LEGEND

Project Boundary

Habitat Type and Acreage within Project Boundary

- Sandy Beach - 4.338 ac
- Developed - 5.182 ac
- Mudflats - 0.834 ac
- Marine Open Water and Subtidal- (High Tide) - 13.122 ac
- Parks and Ornamental Landscaping - 23.612 ac
- Southern Coastal Salt Marsh - 0.942 ac

Sensitive Species

- Cooper's hawk nest *(Accipiter cooperii)*
- Estuary sea-blite *(Suaeda esteroa)*

N

0 125 250 Feet

SOURCE: Eagle Aerial (2007).

I:\CLB0702\GIS\VEG_Communities_Fig2.mxd (5/21/2008)

Colorado Lagoon Restoration Project

Existing Vegetation Communities

(4) All impoundments of waters otherwise defined as waters of the United States under the definition; and

(5) Tributaries of waters defined in paragraphs (a) (1)–(4) of this section."

The Corps typically considers its jurisdiction as waters of the United States with respect to bodies of water displaying an ordinary high water mark (OHWM). Corps jurisdiction over nontidal waters of the United States extends laterally to the OHWM or beyond the OHWM to the limit of any adjacent wetlands, if present (33 CFR 328.4). The OHWM is defined as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area" (33 CFR 328.3). Jurisdiction typically extends upstream to the point where the OHWM is no longer perceptible.

As discussed above, Corps regulatory jurisdiction under Section 404 of the CWA is founded on a connection between the water body in question and interstate commerce. This connection may be direct, through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce, or indirect, through a nexus identified in the Corps regulations. In the past, an indirect nexus could potentially be established if isolated waters provided habitat for migratory birds, even in the absence of a surface connection to navigable waters of the United States. The 1984 rule that enabled the Corps to expand jurisdiction over isolated waters of this type became known as the Migratory Bird Rule. However, on January 9, 2001, the United States Supreme Court (Supreme Court) narrowly limited the Corps jurisdiction of "nonnavigable, isolated, intrastate" waters based solely on the use of such waters by migratory birds, and particularly, the use of indirect indicators of interstate commerce (e.g., use by migratory birds that cross state lines) as a basis for jurisdiction. The Supreme Court's ruling derives from the case Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, No. 99-1178 (SWANCC). The Supreme Court determined that the Corps exceeded its statutory authority by asserting CWA jurisdiction over an abandoned sand and gravel pit in northern Illinois that provides habitat for migratory birds.

In 2006, the Supreme Court further considered the Corps jurisdiction of "waters of the United States" in the consolidated cases Rapanos v. United States and Carabell v. United States (126 S. Ct. 2208), collectively referred to as Rapanos. The Supreme Court concluded that wetlands are "waters of the United States" if they significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as navigable. On June 5, 2007, the Corps issued guidance regarding the Rapanos decision. This guidance states that the Corps will continue to assert jurisdiction over traditional navigable waters, wetlands adjacent to traditional navigable waters, relatively permanent nonnavigable tributaries that have a continuous flow at least seasonally (typically 3 months), and wetlands that directly abut relatively permanent tributaries. The Corps will determine jurisdiction over waters that are nonnavigable tributaries that are not relatively permanent and wetlands adjacent to nonnavigable tributaries that are not relatively permanent only after making a significant nexus finding.

Furthermore, the preamble to Corps regulations (Preamble Section 328.3, Definitions) states that the Corps does not generally consider the following waters to be waters of the United States. The Corps does, however, reserve the right to regulate these waters on a case-by-case basis.

- Nontidal drainage and irrigation ditches excavated on dry land
- Artificially irrigated areas that would revert to upland if the irrigation ceased
- Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing
- Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons
- Water-filled depressions created in dry land incidental to construction activity and pits excavated in dry land for purposes of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States

Under Section 10 of the Rivers and Harbors Act of 1899, Corps jurisdiction over tidal waters of the United States extends from the ordinary low tide 3 nautical miles seaward. Corps jurisdiction shoreward extends to the line on the shore reached by the mean high water. This jurisdiction extends to this edge even though portions of the water body may be extremely shallow and are thus considered "navigable in law" although they may not be navigable in fact (33 CFR 329.12).

Waters found to be isolated and not subject to Corps regulation are often still regulated by the Regional Water Quality Control Board (RWQCB) under the State Porter-Cologne Water Quality Control Act (Porter-Cologne Act).

Regional Water Quality Control Board

The RWQCB has regulatory authority over waters of the United States pursuant to Section 401 of the CWA and waters of the State pursuant to the Porter-Cologne Act. The Corps cannot issue authorization for fill or discharge into waters of the United States without a Certification of Water Quality or waiver from the RWQCB. Additionally, isolated nonnavigable waters and wetlands excluded from Corps jurisdiction are subject to RWQCB authority as waters of the State, and any discharge of waste (RWQCB considers fill to be waste) may require a Report of Waste Discharge and may be subject to Waste Discharge Requirements by the RWQCB.

The RWQCB can require mitigation measures above and beyond those required by the Corps or California Department of Fish and Game (CDFG). Typically, however, the mitigation proposed to satisfy the Corps and CDFG (discussed further below) meets RWQCB requirements to offset impacts to water quality.

United States Fish and Wildlife Service

FESA sets forth a two-tiered classification scheme based on the biological health of a species. Endangered species are those in danger of becoming extinct throughout all or a significant portion of their range. Threatened species are those likely to become endangered in the foreseeable future; Special Rules under Section 4(d) can be made to address threatened species. Ultimately, the FESA

attempts to bring populations of listed species to healthy levels so that they no longer need special protection.

Section 9 of the FESA prohibits the "take" of listed species by anyone unless authorized by the United States Fish and Wildlife Service (USFWS). Take is defined as "conduct which attempts or results in the killing, harming, or harassing of a listed species." Harm is defined as "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering." Harassment is defined as an "intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns, including breeding, feeding, or sheltering." Therefore, in order to comply with the FESA, any proposed project should be assessed prior to construction to determine whether the project will impact listed species or, in the case of a federal action on the project, designated critical habitats. If no federal action is associated with the proposed project and the project will result in take of listed species, authorization from the USFWS in the form of a Section 10(a) take permit and an accompanying Habitat Conservation Plan (HCP) are required. If a federal action exists and the project may impact listed species or designated critical habitat, then consultation with the USFWS is required through Section 7 of the FESA. That consultation can result in an incidental take authorization through a Biological Opinion as explained below.

Section 7 of the FESA directs all federal agencies to use their existing authorities to conserve threatened and endangered species and, in consultation with the USFWS, to ensure that their actions do not jeopardize listed species or destroy or adversely modify critical habitat. Section 7 applies to management of federal lands as well as other federal actions that may affect listed species, such as federal approval of private activities through the issuance of federal permits, licenses, or other actions.

Section 7(a)(2) of the FESA requires all federal agencies, in consultation with and with the assistance of the Secretary of the Interior, to ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of critical habitat. This includes any federal action including funding, licensing, permitting, authorizing, or carrying out activities under their jurisdictions. By law, Section 7 consultation is a cooperative effort involving affected parties engaged in analyzing effects posed by proposed actions on listed species or critical habitat(s).

California Department of Fish and Game

The CDFG, through provisions of the California Fish and Game Code (Section 1600 et seq.), is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. Streams (and rivers) are defined by the presence of a channel bed and banks and at least an intermittent flow of water.

The CDFG regulates wetland areas only to the extent that those wetlands are a part of a river, stream, or lake as defined by the CDFG. While seasonal ponds are within the CDFG definition of wetlands, if they are not associated with a river, stream, or lake, they are not subject to CDFG jurisdiction under Section 1602 of the California Fish and Game Code.

The CESA, California Fish and Game Code Sections 2050–2098, was signed into law in 1984. It was intended to parallel the FESA as much as possible. The CESA prohibits the unauthorized "take" of species listed as threatened or endangered under its provisions. However, a significant difference exists in the CESA definition of "take," which is limited to actually or attempting to "hunt, pursue, capture, or kill." CESA provisions for authorization of incidental take include consultation with a State agency, board, or commission that is also a State Lead Agency pursuant to CEQA; authorization of other entities through a 2081 permit; or adoption of a federal incidental take authorization pursuant to Section 2081.1. Similar to the FESA, actions in compliance with the measures specified as a result of the consultation process or 2081 permit are not prohibited.

Migratory Bird Treaty Act and California Fish and Game Code

The federal Migratory Bird Treaty Act (MBTA) regulations and portions of the California Fish and Game Code prohibit the "take" of nearly all native bird species and their active nests. While these laws and regulations were originally intended to control the intentional take of birds and/or their eggs and nests by collectors, falconers, etc., they can nevertheless be applied to incidental take (e.g., destroying a tree with an active nest). In some cases, it is possible to obtain permits for relocating or removing nests.

California Coastal Commission

The California Coastal Commission (CCC), through provisions of the California Coastal Act, is empowered to issue a Coastal Development Permit (CDP) for many projects located within the Coastal Zone. In areas where a local entity has a certified Local Coastal Program (LCP), the local entity (e.g., City of Long Beach) can issue a CDP only if it is consistent with the LCP. The CCC, however, has appeal authority for portions of LCPs and retains jurisdiction over certain public trust lands and in areas without an LCP.

The CCC definition of wetlands, as defined in Section 30121 of the California Coastal Act and Title 14 Section 13577 of the CCC regulations, is distinctly different from the Corps definition of wetlands. According to CCC regulations, wetlands are defined as "land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes." Both definitions focus on three fundamental wetland characteristics: hydrology, soils, and vegetation. However, while the Corps definition requires the existence of all three wetland characteristics for an area to be considered a wetland, the CCC definition of wetlands is based on the existence of only two characteristics: wetland hydrology sufficient to either support a prevalence of hydrophytic vegetation or promote the formation of hydric soils. (Exceptions include certain areas that lack wetland soils and vegetation.) It is noted that, under certain circumstances, reliable indicators of all required characteristics are not necessarily apparent, and areas may be delineated as wetlands by the Corps on the basis of indicators of only two of the three characteristics. The CCC routinely makes jurisdictional wetland determinations based on the presence of one characteristic indicator (i.e., wetland soils or vegetation) under the assumption that wetland hydrology must be present in order for the indicator to be present. Nevertheless, the presence of wetland hydrology during some portion of most years is fundamental to the existence of any wetlands, and the CCC will sometimes disregard vegetation or soil indicators when there is sufficient evidence to conclusively refute the presence of wetland hydrology.

Significant Ecological Area

The County of Los Angeles (County) has assigned the designation of Significant Ecological Area (SEA) to biologically important areas within Los Angeles County for the purpose of conserving biological diversity. SEAs are not preserves, but instead are areas where the County prioritizes balancing new development with resource conservation. The SEA program acts as a resource identification tool that aides in the conservation and management of biological resources. The SEA program is not enforced by the County on lands under the jurisdiction of incorporated cities.

Alamitos Bay, which is a proposed SEA, is connected to the Colorado Lagoon Restoration project area through a tidally influenced culvert. Alamitos Bay is one of two remaining salt marsh habitats within Los Angeles County and is in relatively good condition due to restrictions on public use. Estuaries and salt marshes are the interface between the terrestrial and marine worlds, and are important nutrient cycling centers for marine ecosystems. It is probable that Belding's savannah sparrow (*Passerculus sandwichensis beldingi*) occurs in Alamitos Bay according to the draft SEA description for Alamitos Bay (County of Los Angeles 2008). This species is restricted to salt marsh habitat, and has been placed on the State endangered species list. No suitable habitat for this bird exists at the Lagoon due to the highly degraded state of the coastal salt marsh on the project site. This type of habitat is also important as a wintering ground for migratory birds. The proposed SEA for Alamitos Bay does not place any restrictions on the proposed project activities in the Lagoon, and SEA regulations do not apply to areas within City boundaries (County of Los Angeles 2008).

Local Tree Protection

The City of Long Beach Municipal Code (Ordinance C-7642) requires that a permit be obtained from the Director of Public Works prior to removal of trees from City-owned property. The City also requires that the trees be identified, mapped, and measured prior to removal. The project will remove existing trees, including the Mexican fan palm (*Washingtonia robusta*) along the access road on the west side of the northern arm of the Lagoon as well as others at the Lagoon, Marina Vista Park, and Marine Stadium.

METHODS

Literature Review and Records Search

A literature review and database records search were conducted on January 11, 2008, to identify the existence or potential occurrence of special interest biological resources (e.g., plant and animal species) in or within the vicinity of the project area (Appendix A).

LSA is aware of several biological studies that have been conducted on the Lagoon by other firms (e.g., Chambers Group). Previous biological reports prepared by other firms and wildlife data prepared by the Friends of the Colorado Lagoon (FOCL) for the project area were reviewed as part of this assessment report.

LSA conducted record searches in the California Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS) electronic databases for special interest species expected to

occur within the vicinity of the project area. Current electronic database records reviewed by LSA included the following:

- CNDDB information (i.e., RareFind 3.0.5), which is administered by the CDFG. This database covers lists of special interest animal and plant species, as well as special interest natural communities that occur within California.
- CNPS Electronic Inventory of Rare and Endangered Vascular Plants of California (Skinner and Pavlik 1994), which identifies four specific designations or "Lists" of special interest plant species and summarizes regulations that provide for the conservation of special interest plants. The following quote is excerpted from the CNPS Inventory section that deals with CEQA and special interest plant conservation (see Table A):

  > "The DFG recognizes that Lists 1A, 1B, and 2 of the CNPS Inventory consist of plants that, in a majority of cases, would qualify for listing [pursuant to CEQA Guidelines Section 15380], and the Department recommends they be addressed in Environmental Impact Reports (EIR)."

Table A: California Native Plant Society Special Interest Plant Species Designations

List	Classification
1A	Presumed Extinct in California
1B	Rare or Endangered in California and Elsewhere
2	Rare or Endangered in California, More Common Elsewhere
3	Need More Information
4	Plants of Limited Distribution

In addition to these resources, other special interest species known by LSA to occur in the general area were also considered.

The habitat types or plant communities identified for the terrestrial natural communities is described in the CDFG *Descriptions of the Terrestrial Natural Communities of California* (Holland 1986).

The habitat types or plant communities identified for nonnatural or water body communities are described in the *Orange County Habitat Classification System* (County 1992), which was based on Holland (1986).

The special interest plant and animal species known or with potential to occur in the project area are listed in Appendix A.

Field Surveys

The fieldwork for this evaluation was conducted by LSA biologist Matt Teutimez with the assistance of FOCL member and biologist Eric Zahn on January 11, 2008, to determine the biological resources of the project area and quantify and map existing habitat communities. The general survey was conducted on foot and included habitat community identification and a survey of biological resources

within the project area. Resource mapping was accomplished by using a 2006 aerial photograph (scale: 1"=100') of the project area. The habitat communities were mapped on the aerial photograph, and the locations of any species of interest were labeled. All wildlife and plant species observed directly or otherwise were separately noted, and the suitability of the habitat within the project area to support any special interest wildlife species was considered.

During the course of the survey described above, LSA assessed the biological condition of the project area, including vegetation, wildlife, and suitability of habitat for the presence of various special interest species. A list of the vascular plant species observed and a list of animal species observed are attached as Appendices B and C, respectively. Protocol surveys for wildlife species (e.g., Belding's savannah sparrow) were not conducted. Similarly, a focused rare plant survey was not conducted, but a general plant and animal inventory was taken.

In addition to the field visits conducted to assess the biological resources, fieldwork for the jurisdictional waters evaluation was conducted by LSA biologists Jim Harrison and Elizabeth Delk on December 5, 2007, and by Elizabeth Delk and Matt Teutimez on February 4, 2008. The project area was surveyed on foot, and all areas of potential jurisdiction were evaluated according to Corps, CDFG, and CCC criteria. Data were recorded directly on the field maps. Field maps of the area to be surveyed were prepared using a 2006 aerial photograph (scale: 1"=100'). The jurisdictional delineation and data forms are attached as Appendix D.

RESULTS

Habitat Communities

The total project area, which is approximately 48.61 ac, consists mainly of recreational parkland surrounded by urban residential development (Figure 2). The Lagoon has been subject to continuous contamination over several decades and is listed under California's 303(d) list of impaired water bodies. The discharges from the urban residential and recreation areas have led to the degradation and elimination of the original habitat communities.

The project area supports two plant communities and four habitat types, as described in both the *Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) and the *Orange County Habitat Classification System* (County 1992). The plant communities within the project area include parks and ornamental plantings (approximately 23.61 ac) and southern coastal salt marsh (approximately 0.94 ac) (Holland 1986). The four habitat types within the project area include: mudflats (approximately 0.83 ac); sandy beach (approximately 4.34 ac); developed land (approximately 5.18 ac); and marine open water and subtidal (measured at high tide and including all subtidal and intertidal habitats) (approximately 13.12 ac) (County of Orange 1992). All plant species observed or recorded on site are listed in Appendix B. Mudflats are not described in the references above but are considered here as a habitat type due to its high resource value as an exceptionally productive biodiversity center for invertebrates, an important feeding habitat for wintering and migrating shorebirds and waterfowl, and its ability to dissipate wave energy to help reduce the risk of eroding salt marshes. The following six habitat communities exist within the project area.

Parks and Ornamental Landscaping (approximately 23.61 ac): This plant community is the dominant community within the project area. The dominant herbaceous plant is turf grass, which is a mixture of multiple nonnative grasses such as Bermuda grass (*Cynodon dactylon*) and annual bluegrass (*Poa annua*). Scattered throughout the project area are mature trees typically used in Southern California park landscaping. The dominant ornamental plant species are gum tree (*Eucalyptus* sp.), Canary Island pine (*Pinus canariensis*), carrotwood (*Cupaniopsis anacardioides*), myoporum (*Myoporum laetum*), southern magnolia (*Magnolia grandifolia*), Peruvian pepper (*Schinus molle*), Mexican fan palm (*Washingtonia robusta*), and European olive (*Olea europaea*). Some of the gum trees along the southern and eastern portions of the project area are known to support migrating monarchs as a stop-over site (FOCL, personal communication). Ornamental trees are also used by perching and nesting birds including raptors. One of the ornamental trees in the northeast corner of the project area was a nesting tree for a pair of Cooper's hawks (*Accipiter cooperii*), which fledged three young in 2007 (FOCL, personal communication).

Southern Coastal Salt Marsh (approximately 0.94 ac): The salt marsh at the Lagoon has degraded from a natural three-tier coastal salt marsh plant community (i.e., lower, middle, upper) (Zedler, 2000) to a remnant strip of a middle marsh plant community dominated by common pickleweed (*Salicornia virginica*), saltwort (*Batis maritima*), and jaumea (*Jaumea carnosa*). These middle marsh plants are ecologically important to the Lagoon since this community is made up of heritage populations that have survived degradation for decades.

The lower edge of the marsh that is inundated most often and would normally be characterized by cordgrass (*Spartina foliosa*) is absent, apparently a result of decades of polluted water and muted tidal fluctuations.

The upper marsh, which would normally be characterized by glasswort (*Salicornia subterminalis*), alkali heath (*Frankenia* sp.), and sea-blite (*Suaeda* spp.), has been outcompeted by nonnative vegetation from the surrounding residential and park landscape and is not present in a functioning form. Some fragments of the upper marsh plant community still exist on site such as alkali heath (*Frankenia salina*), estuary sea-blite (*Suaeda esteroa*), saltgrass (*Distichlis spicata*), and shoregrass (*Monanthochloe littoralis*), but only within the elevation of the middle marsh plant community. In addition, even though the Lagoon receives fluctuating amounts of freshwater input, FOCL salinity measurements report an average salinity of 35 to 40 parts per thousand (PPT), which does not allow the Lagoon to support characteristic brackish marsh species such as sedges, cat-tails, or rushes (*Carex* sp., *Scirpus* sp., *Typhus* sp., or *Juncus* sp.), even around the freshwater source.

The coastal salt marsh surrounds the Lagoon in a thin band that is interrupted by two zones of machine-groomed sandy beach (Figure 2). Along the eastern arm of the Lagoon, the marsh plant community is the most diverse; however, the salt marsh is being outcompeted largely by Hottentot fig and iceplant with other nonnative species present as well, such as common groundsel (*Senecio vulgarus*), rip-gut brome (*Bromus diandrus*), and cultivated grape (*Vitis vinifera*). The nonnative species have outcompeted the salt marsh community on the eastern arm to the edge of the Lagoon. The northwestern arm of the Lagoon consists mainly of turf grass and slopes steeply to the mud bottom. However, the west arm provides mats of shoregrass and biologically diverse potholes of sufficient size to support multiple species, including sea lavender (*Limonium* sp.), sea-blight, alkaliweed (*Cressa* sp.), and saltgrass.

Mudflats (approximately 0.83 ac): Mudflats, in general, support very little vegetation other than green algae. The mudflats of the Lagoon do not support any vegetation, but they do support invertebrate species such as mollusks, crustaceans, worms, horn snails (*Cerithidea* spp.), and tiger beetles (*Cicindela* spp.). The mudflats form a contiguous strand around the Lagoon, with the most productive areas located around the east and west arms of the Lagoon and with degraded mudflats in front of the sandy beaches. The Lagoon mudflats provide a consistent feeding area for many migrating and resident shorebirds and waterfowl such as marbled godwit (*Limosa fedoa*), American widgeon (*Anas americana*), and ruddy duck (*Oxyura jamaicensis*).The western edge of the west arm has a concentrated area of productive mudflat that supports the only known populations of tiger beetles at the Lagoon.

Sandy Beach (approximately 4.34 ac): Within the project area, there are two areas located along the north and south portions of the Lagoon that are sandy beaches. There is no vegetation growing on these beaches since they are frequently machine groomed. The sandy beaches are used by the public for various recreational activities and as a roosting site for gulls and resting waterfowl. The area has a high recreation value, but due to constant use and grooming, there is little habitat value in these areas for native flora or fauna.

Developed Land (approximately 5.182 ac): This habitat type is present at the parking lot on the north side of the Lagoon and the driveway entrance from East 6th Street to the parking lot. The only vegetation within the developed area is just some individual nonnative turf grass, mainly Bermuda grass, growing in the cracks of the asphalt. This area does not support any native vegetation and has little to no habitat value for native flora or fauna.

Marine Open Water and Subtidal (approximately 13.12 ac at high tide): This habitat type represents the Lagoon and consists of the most acreage within the project limits. Due to the reduced capacity and perching of the culvert to Marine Stadium, the tidal flushing is greatly reduced, and water levels do not fluctuate substantially. However, the Lagoon still provides habitat for adult fish and their young as a shelter and nursery as well as providing foraging opportunities for migratory birds, especially the federally endangered California least tern (*Sternula antillarum brownii*) and brown pelican (*Pelecanus occidentalis*). Least terns and brown pelicans have been observed at the Lagoon in the past (Keane 2004). Eelgrass is an important habitat type for a diverse array of marine resources. Habitat suitable for eelgrass is generally soft mud substrate at depths between 4 and 7 ft below mean sea level (MSL). However, these plants can survive at greater depths. The eelgrass habitat within the Lagoon is represented in Table B below and discussed in detail in the Marine Resources Report (Appendix E).

The vegetation communities present on the project site are summarized in Table B and shown in Figure 2.

Table B: Summary of Vegetation Communities and Habitat Types

Terrestrial Vegetation Community/Habitat Type	Colorado Lagoon and Marina Vista Park (acres)
Parks and ornamental landscaping	23.61
Southern coastal salt marsh	0.94
Mudflats	0.83
Sandy beach	4.34
Developed	5.18
Marine open water and subtidal	13.12
• *Eelgrass habitat (subtidal range from 4ft to 7ft below MSL)*	*1.25*
• *Marine open water and remaining subtidal (includes intertidal areas)*	*11.88*
Total[1]	**48.03**

Source for Eelgrass Habitat: Habitat Assessment for the Colorado Lagoon Restoration Feasibility Study for the City of Long Beach, Chambers Group, 2004.
[1] Total may not equal sum due to rounding.

WILDLIFE

Several wildlife species commonly associated with the habitat types identified within the project area were observed. Overall, 2 invertebrate, 1 reptile, 47 bird, and 4 mammal species were observed or otherwise detected in the project area during the field survey as well as an additional 24 species that were documented by other consulting biologists or FOCL members but not observed during the field survey. Natural vegetation within the project area was moderately used by wildlife with the majority of species occurring in ornamental plantings and within the open water of the Lagoon. All vertebrate and invertebrate species observed or detected on or flying over the site are listed in Appendix C.

SPECIAL INTEREST BIOLOGICAL RESOURCES

Special Interest Species

Special-interest species include "listed species," which have a listing as threatened, endangered, or candidate by the USFWS or CDFG, as well as nonlisted species. Nonlisted special-interest species include California Species of Concern (CSC), California Fully Protected (CFP) species, as designated by the CDFG, as well as plant species on CNPS Lists 1 and 2, which include species that are rare or endangered in California and animals protected by other federal or state laws, such as marine mammals. Other species that are designated as rare or declining by local agencies or in local or regional plans, or that are on other watch lists, may also be considered special-interest species.

Legal protection of special interest species varies widely from the relatively comprehensive protection afforded to species listed as endangered and/or threatened to no legal status at present. The CDFG, USFWS, local agencies, and various special interest groups (e.g., CNPS) publish watchlists of declining species. These lists often describe the general nature and perceived severity of the species'

decline. In addition, recently published findings and preliminary results of ongoing research provide a basis for consideration of species that are candidates for State and/or federal listing. Finally, species that are clearly not rare or threatened either statewide or regionally, but whose local populations are sparse, rapidly dwindling, or otherwise unstable, may be "of local interest."

The CDFG maintains additional information for species with the designations of "Special Animal" (SA) and "Special Plant" (SP). These designations do not afford specific protection for the species and are not indicators of the sensitivity or rarity of the species. Additionally, the CNPS maintains List 3 (species about which more information is needed) and List 4 (a watch list). These lists also do not afford any specific protection or status to the species. These species are not considered to be special-interest species, but known and probable occurrences are documented in this report for purposes of full disclosure.

For purposes of this discussion, the term "special interest species" refers to those plants and animals occurring (or potentially occurring) in the project area and designated as endangered or rare (as defined by CEQA and its State Guidelines) or of current local, regional, or State concern. These are species that are rare, locally restricted, or declining in a significant portion of their range. Inclusion in the special interest species analysis for this project is based on satisfying at least one of the following criteria: (1) direct observation of the species in the project area during one of the biological surveys conducted for this report; (2) sighting by other qualified and reputable observers (e.g., FOCL); (3) record reported by the CNDDB and the CNPS; or (4) project area contains appropriate habitat and is within the known range of a given species. A variety of sources was used to establish the list of special interest species potentially affected by the project.

Some of the special interest species identified in the literature review are not expected to occur due to the absence of suitable habitat, conditions on site, or the distant location of the site from a species' known distribution. These species are excluded from further discussion in this report. Appendix A contains detailed information regarding special interest plant and animal species observed or potentially present within the project area, including species' habitat and distribution, activity period, State and federal status designations, and probability of occurrence.

Special Interest Animals

Several special-interest species have been documented from the project area in previous surveys (Chambers 2004; Keane 2004; FOCL ongoing). Observations of noteworthy species have included the California least tern and brown pelican, both of which are listed as State and federally endangered and are CFP species. These species have been documented at the Lagoon in previous consulting firm reports and by FOCL members. In the summer of 2004, Keane conducted a total of 20 surveys at the Lagoon and Marine Stadium for least terns and brown pelicans. Based on the results of the Keane study, the Lagoon was considered to support foraging least terns and foraging and roosting brown pelicans rarely (Keane 2004). However, there are two breeding colonies of California least terns (i.e., Seal Beach National Wildlife Refuge and Los Angeles Harbor Pier 400) and communal roosts of brown pelicans (e.g., Long Beach Harbor breakwater) located less than 5 miles from the Lagoon, so ongoing use of the Lagoon by these species is expected.

FOCL members and LSA biologists have documented use of the project area and vicinity by raptors. Raptor use of an area for foraging, and particularly nesting, is considered significant. Nesting raptors

are protected by the MBTA and by Section 3503 of the California Fish and Game Code. The high number of large trees on site and elsewhere in the vicinity create good foraging, perching, and nesting habitat for raptors. In 2007, FOCL member Taylor Parker observed and documented a nesting pair of Cooper's hawk in the northeast corner of the Lagoon in an ornamental tree. The pair successfully fledged three young (T. Parker, personal communication). Other raptors that are present in the area include red-tailed hawk (*Buteo jamaincensis*) and osprey (*Pandion haliaetus*). Suitable habitat is present for great horned owls (*Bubo virginianus*) in the mature gum trees surrounding the Lagoon, but there have been no observations to date.

FOCL members have documented the use of the mudflats along the western arm by two species of tiger beetles. The beetles have only been observed within the southwest edge of the west arm. There have been two separate species recorded at the Lagoon; however, this does not represent a full inventory of tiger beetles that may be present. The tiger beetles recorded on site include S-banded tiger beetle (*Cicindelidia trifasciata sigmoidea*) and wet salts tiger beetle (*Cicindelidia hemorrhagica hemorrhagica*) (Appendix C). The natural history of these tiger beetles is not well known at the Lagoon and in general. Tiger beetles are predatory insects that feed on small insects and other arthropods. Tiger beetles exhibit two different general life cycles: (1) spring/fall species, which emerge from pupae in the fall, spend the winter as adults, and are active again in the spring; and (2) summer species, which emerge from pupae in the spring, are active in the summer, and die in the fall. The Lagoon contains both life cycles. The tiger beetles identified in the project area are not listed on the CNDDB list (i.e., *C. hirticollis gravida, C. latesignata latesignata*, and *C. senilis frosti*) but are considered as potential special-interest species given that these populations have survived the degradation of the Lagoon and are now isolated from other populations. As a result, these isolated populations of tiger beetles are a remnant of the original salt marsh ecosystem and may be an important component of the Lagoon's natural diversity.

The tiger beetle populations within the mudflats on the western arm will be impacted during recontouring of the mudflat slopes. Two species of tiger beetles have been observed at the Lagoon. An undescribed species of tiger beetle was discovered at the last natural remnant of Los Cerritos Wetlands nearby and is currently being genetically tested for distinctiveness by David L. Pearson, Ph.D., at Arizona State University according to personal communication with FOCL member Eric Zahn. The status of the undescribed tiger beetle is unknown at this time. It has not been observed at Colorado Lagoon; therefore, it is not anticipated that the recontouring of mudflat habitat within the Lagoon will impact this population. Other tiger beetles on site are common species and known to exist nearby (Pearson 2001; Nagano 1980). The recontouring of the Lagoon will likely impact the current resident populations; however, recolonization at the Lagoon is highly likely and within the dispersal range of both species. Tiger beetle habitat will be increased and tiger beetles are expected to repopulate the area. Therefore, the potential for impacts to resident populations of tiger beetles are anticipated to be minimal.

FOCL members have also documented use of the project area and vicinity by monarch butterflies (*Danaus plexippus*). From August–October each year, groups of monarchs migrate from Canada and the United States to overwinter from mid-October through February in coastal Southern California. Females lay their eggs along the migratory route, which takes up to three generations to complete, ending at their destination of central Mexico. The first generation begins their migration by flying to wintering locations along the California coast. At wintering sites, many will cluster in gum tree groves and mate in late January, then leave for their spring migration by March. A known wintering

site is located within 2 miles of the Lagoon at El Dorado Regional Park in south Long Beach. The Lagoon contains many mature nonnative gum trees that provide roosting opportunities for monarch butterflies.

The following California Special Concern (CSC) species have a moderate or high occurrence probability or were observed within or adjacent to the project area (Appendix C): osprey, Allen's hummingbird (*Selasphorus sasin*), double-crested cormorant (*Phalacrocorax auritus*), lark sparrow (*Chondestes grammacus*), California gull (*Larus californicus*), Western mastiff bat (*Eumops perotis californicus*) and Western yellow bat (*Lasiurus xanthinus*).Cooper's hawk has been observed and documented breeding and foraging in the project area. The Cooper's hawk was recently delisted as a CSC species, but is afforded protections through the MBTA and California Fish and Game Code Section 3503.

Special Interest Plants

One special interest plant species, consisting of estuary sea-blite (*Suaeda esteroa*), was observed within the project area during the site visit. Spring surveys were not conducted for the project area; however, most of the expected special interest plants probably would have been detectable during the site visit. This species is a CNPS listed 1B species that was not detected in the 2004 study of the project area; however, a single plant is known to occur in the southeast portion of the Lagoon close to the culvert inlet (specimen observed during site visit) (Figure 2).

The table in Appendix A describes the special interest plant species that were found in the literature search that are known to occur (or occurred) in the vicinity and that were surveyed for, their associated habitat types, and the probability that they may occur on site. Most species were designated as having a low probability of occurring on site, a designation that reflects the fact that the species has been known to occur in the vicinity but either habitat is marginal within the project area or the project area is outside the known range. Any others that were found in the literature search are considered to be absent from the site and so were not included in the table since suitable habitat is lacking or they are not expected to occur.

PROJECT-RELATED IMPACTS

The purpose of the Colorado Lagoon Restoration project is to improve the water quality and to restore the Lagoon's beneficial uses. The project proposes to recontour the Lagoon to increase intertidal zones, to reduce the bank slopes and increase the salt marsh habitat, to restore coastal salt marsh and transitional upland habitat, and to increase the size and depth of the culvert between Marine Stadium and the Lagoon that is within the Marina Vista Park. This project is unique in an urban setting in that the impacts do not relate to development; instead, the impacts relate to beneficial purposes that will result in an increase in both habitat and jurisdictional areas. The impacts will be associated with losses of area during recontouring and, since the improvement project is designed to enhance and restore the original natural communities, all impacts associated with the project are temporary and will be mitigated by the restoration of the Lagoon.

Impacts to Special Interest Habitat Types

Southern coastal salt marsh occurs in a thin band that is interrupted by two zones of machine-groomed sandy beach. The plants associated with this remnant strip of middle salt marsh have survived the long history of degradation to the Lagoon and represent a heritage population of plants that are uniquely designed to live at the Lagoon. In order to retain the same genetic resilience as the parent population, cuttings and/or propagules should be collected from these plants for use in the restoration effort.

Impacts to Special Interest Species

Only one special interest plant species is expected in the project area since nearly all of the plants that appeared in the literature search have a low probability for occurrence due to lack of habitat. Estuary sea-blite is a Special Plant according to the CDFG since it is a taxon of concern to the Natural Diversity Database and appeared in the literature search for the project area. This species has been observed in the project area and is located toward the edge of the Lagoon in the southeast portion of the project area (Figure 2). Recontouring of the slopes of the north arm would impact this plant, and avoidance and/or propagation would be necessary.

Special interest animal species are known to use the project area. The California least tern and brown pelican, which are state and federally protected species, are known to use the project area. These species are not expected to be impacted from Lagoon improvements since the Lagoon is a poor-quality foraging site, and higher-quality foraging sites are available short distances up or down the coast. The Lagoon has been used as a roosting site for small groups of brown pelicans in the past. However, daytime Lagoon improvements are not expected to impact roosting pelicans since there are other available roosting sites located short distances up and down the coast.

The Cooper's hawk pair that was observed nesting in an ornamental tree on the northeast corner of the project site is not expected to be impacted unless construction activity is proposed during nesting season and construction activity occurs near the nest, or the nest is unknowingly removed. If construction activities occur outside of the nesting season (September 1 through January 31), there is a large quantity of available mature trees in the surrounding park and urban landscape that can provide suitable alternative nest sites for the pair. However, if construction is proposed during the nesting season (February 1 through August 31), the project could result in adverse impacts to nesting birds.

The western mastiff bat and western yellow bat have not been identified within the project area by previous consulting biologists or FOCL members; however, focused surveys have not been conducted for either species. The western mastiff bat favors large bodies of water for foraging and has been known to colonize tall buildings. If the bat occurs at the Lagoon, the improvement activities will not impact any roosting or colonization activities, but could have a potential temporary impact on foraging activities. However, the close proximity of other large bodies of water (e.g., Marine Stadium, Alamitos Bay, and Anaheim Bay), decreases the potential for impacts on foraging activities. The western yellow bat is thought to be noncolonial, and individuals usually roost in trees, hanging from the underside of a leaf. They are commonly found roosting in the skirt of dead fronds in both native and nonnative palm trees as well as cottonwoods. If the bat occurs at the Lagoon, the removal of Mexican fan palms from the access road on the west side of the northern arm of the Lagoon as well

as others in the Lagoon and Marine Stadium could have an impact on roosting bats. If construction is proposed during the bat breeding season (February 1 through August 31), the project could result in adverse impacts to breeding bats. The presence or absence of western yellow bats should be investigated by a qualified biologist prior to the removal of any palms or cottonwoods from the project area.

Special interest species listed in Appendix A appeared in the literature search. Most have a low probability of occurrence, but some have moderate to high potential or were observed within or adjacent to the project area. Habitat in the project area is small in size and marginal in quality for most of these species.

MITIGATION MEASURES

The following mitigation measures are recommended to enhance habitat for general wildlife, special interest species, and nesting birds and raptors. Implementation of these measures will ensure that impacts are minimized.

- The remnant salt marsh community shall have cuttings or any other propagules of the plant collected from the represented species in order to retain the genetic stock of the Lagoon's salt marsh plant community.
- The one specimen of estuary sea-blite shall be conserved to the best extent possible. If the original plant cannot be conserved, then cuttings and/or any other propagules of the plant shall be collected from this specimen or a close genetic source (e.g., Anaheim Bay) prior to the removal of the specimen.
- The presence or absence of western yellow bats should be investigated by a qualified biologist prior to the removal of any palms or cottonwoods from the project area. If bats are present, a memo shall be submitted to the CDFG to determine appropriate action.

REFERENCES

Abrams, Leroy. 1940. *Illustrated Flora of the Pacific States: Washington, Oregon, and California.* Vol 1. Stanford, California: Stanford University Press.

Anderson, Timothy. 2008. Naturalist. Personal Communication.

California Department of Fish and Game. 2007a. Habitat Conservation Division, Wildlife and Habitat Data Analysis Branch. State and Federally Listed Endangered and Threatened Animals of California, dated October 2007. Sacramento, California: The Resources Agency.

———. 2007b. Habitat Conservation Division, Wildlife and Habitat Data Analysis Branch. State and Federally Listed Endangered, Threatened, and Rare Plants of California, dated October 2007. Sacramento, California: The Resources Agency.

———. 2007c. Natural Diversity Database. Special Animals List, dated July 2007. Sacramento, California: The Resources Agency.

———. 2007d. Natural Diversity Database. Special Plants List, dated April 2007. Sacramento, California: The Resources Agency.

———. (CNDDB). 2007e. *RareFind 3.0.5*. Records search executed January 11, 2008, covering the USGS 7.5-minute series topographic map, *Long Beach, California* quadrangle. Sacramento, California: The Resources Agency.

California Native Plant Society. 2007a. Botanical Survey Guidelines of the California Native Plant Society. Fremontia, 29:64-65.

———. 2007b. *Inventory of Rare and Endangered Plants of California*. Rare Plant Scientific Advisory Committee, David. P. Tibor, Convening Editor. On-line Inventory, sixth edition. Sacramento, California.

Chambers Group, Inc. 2004. Habitat Assessment for the Colorado Lagoon Restoration Feasibility Study for the City of Long Beach. Prepared for Moffatt & Nichol.

County of Los Angeles. 2008. Draft Significant Ecological Area for Alamitos Bay. Website accessed 1/18/08 at 3:00 pm. http://planning.lacounty.gov/doc/gp/gpSEA/SEA_Alamitos_Bay.pdf

County of Orange Environmental Management Agency. 1992. *Habitat Classification System Natural Resources Geographic Information System (GIS) Project.* Orange County Board of Supervisors, Michael M. Ruane, Director. Orange County, California.

Freitag, Richard (1999. Catalogue of the Tiger Beetles of Canada and the United States. National Research Council Research Press Ottawa, Canada.).

Gray, J., Bramlet, D. 1992. *Habitat Classification Systems, Natural Resources Geographic Information System Project*. Santa Ana, California.

Hickman, J.C., ed. 1993. *The Jepson Manual: Higher Plants of California*. Berkeley and Los Angeles, California: University of California Press.

Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. The Resources Agency, Department of Fish and Game, State of California.

Keane Biological Consulting. 2004. Foraging Surveys for California Least Tern and California Brown Pelican at Colorado Lagoon and Marine Stadium, Long Beach, California, for County of Los Angeles Department of Public Works Termino Drain Project. Letter dated October 14, 2004.

Laudenslayer et al. 1991. A Checklist of the Amphibians, Reptiles, Birds, and Mammals of California. *California Fish and Game* 77:109–141.

Parker, Taylor. 2008. FOCL member. Personal Communication

Pearson, D.L., C.B. Knisley, and C.J. Kazilek. 2005. A Field Guide to the Tiger Beetles of the United States and Canada: Identification, Natural History and Distribution of the Cicindelids. Oxford Univ. Press, New York, NY.

Pearson, D.L., and A.P. Vogler. 2001. Tiger beetles: The evolution, ecology, and diversity of the cicindelids. Cornell University Press, Ithaca, New York.

Roberts, F.M. 1998. A Checklist of the Vascular Plants of Orange County, California. Encinitas, California: F.M. Roberts Publications.

Sibley, David Allen. 2000. *The Sibley Guide to Birds.* 1st ed. New York: Alfred A. Knopf.

Sonnenberg, Richard. 2008. FOCL member. Personal Communication

Zahn, Eric. 2008. FOCL member. Personal Communication

Zedler, J.B. 2000. *Handbook for Restoring Tidal Wetlands*. CRC Press, Boca Raton. 439 p.

Zedler, J.B., C.S. Nordby, and B.E. Kus. 1992. The Ecology of Tijuana Estuary, California: A National Estuarine Research Reserve NOAA, Washington, D.C.

APPENDIX A

SPECIAL INTEREST SPECIES SUMMARY

Species*	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Plants				
Atriplex parishii **Parish's brittlescale**	US: – CA: SP CNPS: 1B MSHCP: S	Alkali meadows, vernal pools, chenopod scrub, and playas. Usually on drying alkali flats with fine soils; elevations 25 to 1,900 meters (80 to 6,200 feet). Plant collected once in California since 1974 (in 1993).	Blooms June through October (annual herb)	**Low.** Lacking suitable substrate or growing conditions in the study area. Not observed during survey. Thought to be extirpated.
Atriplex serenana var. *davidsonii* **Davidson's saltscale**	US: – CA: SP CNPS: 1B MSHCP: S	Alkaline soils in scrub and herbaceous communities at 10 to 500 meters (30 to 1640 feet) in elevation. In California, known only from Los Angeles(?), Orange, Riverside, San Diego, Santa Barbara, and Ventura Counties California.	Blooms May through October (annual herb)	**Low.** Lacking suitable conditions in the study area. Not observed during survey.
Centromadia parryi ssp. *australis* **Southern tarplant**	US: – CA: SP CNPS: 1B	Edges of marshes and swamps, vernal pools, and vernally wet areas in grasslands below 425 meters (1,400 feet) elevation. In California, known only from Santa Barbara, Ventura, Los Angeles, Orange and San Diego Counties.	May through November	**Low/Moderate.** Some suitable substrate for growing conditions in the study area. Not observed during survey.
Cordylanthus maritimus spp. *maritmus* **Salt marsh bird's beak**	US: FE CA: SE CNPS: 1B	Coastal dunes and salt marshes below 30 meters (100 feet) elevation. In California, known from Los Angeles, Orange, Santa Barbara, San Diego, San Luis Obispo, and Ventura Counties. Historical collections referred to this taxon from alkaline meadow in vicinity of San Bernardino Valley are intermediate to *C. maritimus* ssp. *canescens*.	Blooms May through October (annual herb)	**Low.** Lacking suitable substrate for growing conditions in the study area. Not observed during survey.
Lasthenia glabrata ssp. *coulteri* **Coulter's goldfields**	US: – CA: SP CNPS: 1B MSHCP: S	Usually alkaline soils in marshes, playas, vernal pools, and valley and foothill grassland below 1,400 meters (4,600 feet) elevation. Known from Kern, Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, San Luis Obispo, and Ventura Counties. Also occurs on Santa Rosa Island and Baja California, Mexico.	Blooms February through June (annual herb)	**Low.** Lacking suitable substrate or growing conditions in the study area. Not observed during survey.
Nama stenocarpum **Mud nama**	US: – CA: SP CNPS: 2 MSHCP: S	Annual or perennial herb of lake shores, riverbanks, and similar intermittently wet areas at 5 to 500 meters (20 to 1,600 feet) elevation. Known in California from San Diego, Imperial, Los Angeles, Orange, and Riverside, Counties, and San Clemente Island.	Blooms January through July (annual or perennial herb)	**Low.** Lacking suitable substrate or growing conditions in the study area. Not observed during survey.

Species*	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Navarretia prostrata **Prostrate navarretia**	US: – CA: SP CNPS: 1B MSHCP: S	Vernal pools in coastal scrub or valley and foothill grassland (alkaline) of Los Angeles, Merced, Monterey, Orange, Riverside, San Diego and possibly San Bernardino Counties; 15 to 700 meters (50 to 2,300 feet) elevation.	Blooms April through July (annual herb)	**Low.** Lacking suitable substrate or growing conditions in the study area. Not observed during survey.
Nemacaulis denudata var. *denudata* **Coast woolly-heads**	US: – CA: SP CNPS: 2	Sandy places such as coastal dunes, beaches, etc. below 100 meters (300 feet) elevation.	April through September	**Low.** Lacking suitable sandy soil conditions in the study area. Not observed during survey.
Orcuttia californica **California Orcutt grass**	US: FE CA: SE CNPS: 1B MSHCP: S	Vernal pools in Ventura, Riverside, and San Diego Counties, Baja California; known from fewer than 20 locations; below 660 meters (2,200 feet) elevation.	Blooms April through June (annual grass)	**Low.** Lacking suitable conditions in the study area. Not observed during survey.
Pentachaeta lyonii **Lyon's pentachaeta**	US:FE CA: SE CNPS: 1B	Chaparral, valley and foothill grassland. Usually located along the edges of clearings in chaparral and at the ecotone between grassland and chaparral or edges of firebreaks. Elevation between 30-630 meters.	March through April	**Low.** Lacking suitable conditions in the study area. Not observed during survey.
Sidalcea neomexicana **Salt spring checkerbloom**	US: – CA: SP CNPS: 2	Alkaline springs and marshes below 1,530 meters (5,000 feet) elevation. In California, known only from Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, and Ventura Counties.	Blooms March through June (perennial herb)	**Low.** Lacking suitable sandy soil conditions in the study area. Not observed during survey.
Suaeda esteroa **Estuary seablite**	US: – CA: SP CNPS: 1B	Coastal salt marshes along Southern California coast from Santa Barbara County to Baja California from sea level to 15 feet elevation.	Year-round	**Observed.** One specimen is located in the southeast portion of the study area on the banks above the lagoon.
Symphyotrichum defoliatum (Aster defoliatus) **San Bernardino aster**	US: – CA: SP CNPS: 1B	Vernally wet sites (such as ditches, streams, and springs) in many plant communities below 2,040 meters (6,700 feet) elevation. In California, known from Ventura, Kern, San Bernardino, Los Angeles, Orange, Riverside, and San Diego Counties. In the western Riverside County area, this species is scarce, and documented only from Temescal and San Timoteo Canyons (*The Vascular Plants of Western Riverside County, California.* F. M. Roberts et al., 2004).	Blooms July through November (perennial herb)	**Low.** Some suitable conditions in the study area. Not observed during survey.
Invertebrates				

Species*	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Cicindela hirticollis gravida **Sandy beach tiger beetle**	US: - CA: SA	Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco bay to northern Mexico. Clean, dry, light-colored sand in the upper zone. Subterranean larvae prefer moist sand not affected by wave action.	Spring - fall	**Low.** FOCL documented use of the study area by two other species C.trifasciata sigmoidea and C.hemorrhagica hemorrhagica. Other species may be present in the project area.
Cicindela latesignata latesignata **Tiger beetle**	US: - CA: SA	Mudflats and beaches in coastal southern California.	Presumed spring - fall	**Low.** FOCL documented use of the study area by two other species C.trifasciata sigmoidea and C.hemorrhagica hemorrhagica. Other species may be present in the project area.
Cicindela senilis frosti **Tiger beetle**	US: – CA: SA	Inhabits marine shoreline, from central California coast south to salt marshes of San Diego, also found at Lake Elsinore. Inhabits dark-colored mud in the lower zone and dried salt pans in the upper zone.	Presumed spring - fall	**Low.** FOCL documented use of the study area by two other species C.trifasciata sigmoidea and C.hemorrhagica hemorrhagica. Other species may be present in the project area.
Danaus plexippus (wintering sites) **Monarch butterfly**	US: – CA: SA	Winter roosts are located in wind-protected tree groves (Eucalyptus, Monterey Pine, Cypress) with nectar and water sources nearby.	September through March	**Observed.** FOCL doucemented use of the study area in winter among the eucalyptus.
Reptiles				
Actinemys marmorata pallida **Southwestern pond turtle**	US: – CA: CSC	Inhabits permanent or nerly permanent bodies of water in many habitat types below 6000ft elevation. Optimal habitat is characterized by basking sites such as partially submerged logs, vegetation mats, or open mud banks and suitable terrestrial shelter and nesting sites.	Year round	**Low.** Lacking suitable habitat characterized by emergent basking sites, vegetation and the availability of suitable terrestrial shelter and nesting sites.

Species*	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Phrynosoma coronatum **Coast horned lizard**	US: – CA: CSC MSHCP: C	Occurs in annual grassland, coastal sage scrub, chaparral, and woodland communities. Prefers open country, especially sandy areas, washes, and floodplains. Requires open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of ants or other insects. Occurs in Siskiyou County, in the Central Valley and adjacent foothills below 1,200 meters (4,000 feet) elevation, in coastal areas of central California, and in non-desert areas of southern California below 1,830 meters (6,000 feet) elevation, and throughout the Baja California Peninsula.	April through July with reduced activity August through October	**Low.** Habitat has been degraded by introduced weed species and the last known specimen was observed and collected from the San Gabriel River in 1998. The study area is frequented by pedestrians and dogs and the species is expected to be extirpated from the area .
Birds				
Accipiter cooperii (nesting) **Cooper's hawk**	US: – CA: CSC MSHCP: C	Forages in a wide range of habitats, but primarily in forests and woodlands. These include natural areas as well as human-created habitats such as plantations and ornamental trees in urban landscapes. Usually nests in tall trees (20-60 feet) in extensive forested areas (generally woodlots of 4-8 hectares with canopy closure of greater than 60 percent). Occasionally nests in isolated trees in more open areas.	Year-round	**Observed.** One pair was documented by FOCL in 2007 nesting in the northeast portion of the site. The pair succesfully fledged 3 young.
Agelaius tricolor (nesting colony) **Tricolored blackbird**	US: – CA: CSC MSHCP: C	Open country in western Oregon, California, and northwestern Baja California. Breeds near fresh water, preferably in emergent wetland with tall, dense cattails or tules, but also in thickets of willow, blackberry, wild rose, tall herbs and forages in grassland and cropland habitats. Seeks cover for roosting in emergent wetland vegetation, especially cattails and tules, and also in trees and shrubs.	Year-round	**Low.** Habitat in the area is not suitable for foraging and nesting since there are no large stands of emergent freshwater plant species at the lagoon.
Buteo regalis (wintering) **Ferruginous hawk**	US: – CA: CSC MSHCP: C	Forages in open fields, grasslands and agricultural areas, sagebrush flats, desert scrub, fringes of pinyon-juniper habitats, and other open country in western North America.	Mid-September through mid-April	**Low.** Species declining in range so occurance is less likely. Little to no foraging habitat available. Wintering birds known at the Seal Beach Naval Weapons Station agricultural fields.

Species*	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Coccyzus americanus occidentalis (nesting) **Western yellow-billed cuckoo**	US: FC CA: SE MSHCP: S	Breeds and nests in extensive stands of dense cottonwood/willow riparian forest along broad, lower flood bottoms of larger river systems at scattered locales in western North America; winters in South America.	May through September	**Low.** Habitat lacking within the survey area.
Passerculus sandwichensis beldingi **Belding's Savannah sparrow**	US: – CA: SE	Coastal salt marshes from Santa Barbara south through San Diego County. Nests in pickleweed (Salicornia sp.) on and about margins of tidal flats.	Year-round	**Low.** Habitat lacking within the survey area, but known from the area in the tidal and marsh areas.
Pelecanus occidentalis californicus **California brown pelican**	US: FE CA: SE	Colonial nester on coastal islands just outside the surf line. Nests or roosts on coastal islands of small to moderate size which afford immunity from attack by ground-dwelling predators. Common in Long Beach and Los Angeles Harbor breakwaters.	Year-round	**Observed.** Brown pelicans will use the sandy beaches for roosting.
Selasphorus sasin (nesting) **Allen's hummingbird**	US: – CA: SA	Nests in residential areas, chaparral, open oak woodland, and riparian woodland in coastal areas the length of California. Generally restricted to exotic vegetation in urban areas in winter.	Year round in coastal Southern California; February through July elsewhere	**Observed.** Habitat in the area suitable for foraging and nesting. Other individuals were observed by LSA near the study area in the surrounding residential community.
Sterna antillarum browni **California least tern**	US: FE CA: SE	Nests along the coast from San Francisco Bay south to northern Baja California. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, land fills, or paved areas.	April - October	**Observed.** Foraging habitat is available in the study area, however foraging dives are rare or absent. The beaches of the study area can be used for resting adults or fledglings.
Mammals				
Antrozous pallidus **Pallid bat**	US: – CA: CSC	Day roosts in caves, crevices, mines and occasionally hollow trees and buildings. Night roosts may be more open sites, such as porches and open buildings. Hibernation sites are probably rock crevices. Grasslands, shrublands, woodlands, and forest in western North America.	Year-round Nocturnal	**Low.** Suitable foraging habitat exists in the project area and vicinity.

Species*	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Eumops perotis **Western mastiff bat**	US: – CA: CSC	Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc.; roosts in crevices in vertical cliff faces, high buildings, and tunnels, and travels widely when foraging.	Primarily the warmer months	**Moderate.** Suitable foraging habitat exists in the project area and vicinity. Lacking rocky areas for roosting, but buildings in the vicinity are suitable.
Lasionycteris noctivagans **Silver-haired bat**	US: CA: CSC	Primarily a coastal and montane forest dweller feeding over streams, ponds & open brushy areas. Roosts in hollow trees beneath exfoliating bark, abandoned woodpecker holes and rarely under rocks. This species needs drinking water.	Primarily the warmer months	**Low.** Suitable foraging habitat exists in the project area and vicinity. Study area lacking roosting locations.
Lasiurus xanthinus **Western yellow bat**	US: – CA: SA	Occurs in southern California in palm oases and in residential areas with untrimmed palm trees. Roosts primarily in trees, especially the dead fronds of palm trees. Forages over water and among trees.	Primarily the warmer months	**Moderate.** Palms present in the study area suitable for roosting.
Microtus californicus stephensi **South coast marsh vole**	US: – CA: CSC	Occurs in tidal marshes in Los Angeles, Orange and southern Ventura counties.	Year-round, nocturnal and crepuscular activity	**Low.** Habitat is absent in the vicinity and less suitable in the project area. Known to occur at Seal Beach National Wildlife Refuge (CNDDB) but absent at project site.
Nyctinomops macrotis **Big free-tailed bat**	US: – CA: CSC	Inhabits rugged, rocky canyon country in southwestern United States. Found from northern South America and the Caribbean Islands northward to the western United States. In the southwestern U.S., populations appear to be scattered.	Primarily the warmer months	
Perognathus longimembris pacificus **Pacific pocket mouse**	US: FE CA: CSC	Inhabits the narrow coastal plains from the Mexican border north to El Segundo, Los Angeles County. Optimal habitat is characterized by soils of fine alluvial sands near the ocean, but much remains to be learned.	Year-round, enters torpor (dormancy) under cold conditions	**Low.** Project area lacking suitable habitat.

APPENDIX B

VASCULAR PLANT SPECIES OBSERVED

APPENDIX B
VASCULAR PLANT SPECIES OBSERVED

The following vascular plant species were observed in the study area by LSA biologist Matt Teutimez during a site survey conducted on January 11, 2008.

* Introduced, nonnative species

GYMNOSPERMAE	**CONE-BEARING PLANTS**
Pinaceae	**Pine Family**
* *Pinus pinaster*	Cluster Pine
* *Pinus canariensis*	Canary Island Pine
Podocarpaceae	**Podocarp Family**
* Podocarpus macrophyllus	Yew pine
ANGIOSPERMAE: DICOTYLEDONAE	**DICOT FLOWERING PLANTS**
Aizoaceae	**Carpet-Weed Family**
* *Carpobrotus chilensis*	Sea-fig
* *Carpobrotus edulis*	Hottentot-fig
* *Mesembryanthemum crystallinum*	Crystal ice plant
Anacardiaceae	**Sumac Family**
* *Schinus molle*	Peruvian pepper tree
* *Schinus terebinthifolius*	Brazilian pepper tree
Araliaceae	**Ginseng Family**
* *Hedera helix*	English ivy
Asteraceae	**Sunflower Family**
Ambrosia chamissonis	Beach burweed
Ambrosia psilostachya	Western ragweed
Conyza canadensis	Common horseweed
* *Cotula coronopifolia*	African brass-buttons
Gnaphalium sp.	Cudweed
Jaumea carnosa	Fleshy jaumea
* *Senecio vulgaris*	Common groundsel
* *Sonchus asper* ssp. *asper*	Prickly sow-thistle
* *Sonchus oleraceus*	Common sow-thistle
Bataceae	**Saltwort Family**
Batis maritima	American saltwort

Betulaceae		**Birch Family**
	Alnus rhombifolia	White alder
Brassicaceae		**Mustard Family**
*	*Brassica nigra*	Black mustard
*	*Capsella bursa-pastoris*	Shepherd's purse
*	*Hirschfeldia incana*	Shortpod mustard
*	*Raphanus sativus*	Wild radish
Chenopodiaceae		**Goosefoot Family**
*	*Atriplex semibaccata*	Australian saltbush
	Atriplex triangularis	Halberd-leaved saltbush
*	*Bassia hyssopifolia*	Five-hook bassia
*	*Chenopodium album*	Lamb's quarters
	Salicornia virginica	Common woody pickleweed
*	*Salsola tragus*	Russian-thistle
	Suaeda esteroa	Estuary sea-blite
	Suaeda calceoliformis	Pursh's sea-blite
Convolvulaceae		**Morning-Glory Family**
	Cressa truxillensis	Alkali weed
Crassulaceae		**Stonecrop Family**
*	*Crassula ovata*	Jade plant
Fabaceae		**Legume Family**
*	*Acacia auriculiformis*	Earleaf acacia
*	*Erythrina* sp.	Coral tree
*	*Jacaranda mimosifolia*	Jacaranda
*	*Medicago polymorpha*	Bur-clover
*	*Melilotus indica*	Yellow sweet-clover
Fagaceae		**Beech Family**
*	*Quercus ilex*	Holly oak
Frankeniaceae		**Frankenia Family**
	Frankenia salina	Alkali heath
Geraniaceae		**Geranium Family**
*	*Erodium cicutarium*	Red-stemmed filaree
Lauraceae		**Laurel Family**
*	*Cinnamomum camphora*	Camphor tree
Liliaceae		**Lily Family**
*	*Asparagus plumosa*	Asparagus fern

Malvaceae	**Mallow Family**
* *Malva parviflora*	Cheeseweed
Magnoliaceae	**Magnolia Family**
* *Magnolia grandifolia*	Southern magnolia tree
Moraceae	**Mulberry Family**
* *Ficus macrophylla*	Moreton Bay fig
Myoporaceae	**Myoporum Family**
* *Myoporum laetum*	Myoporum
Myrtaceae	**Myrtle Family**
* *Callistemon* sp.	Bottlebrush
* *Eucalyptus camaldulensis*	River red gum
* *Eucalyptus globulus*	Tasmanian blue gum
* *Eucalyptus citriodora*	Lemon scented gum
* *Eucalyptus polyanthemos*	Silver dollar gum
Oleaceae	**Olive Family**
* *Olea europaea*	European olive
Onagraceae	**Evening Primrose Family**
Camissonia cheiranthifolia ssp. *suffruticosa*	Beach evening primrose
Oxalidaceae	**Oxalis Family**
* *Oxalis corniculata*	Creeping woodsorrel
Papaveraceae	**Poppy Family**
Eschscholzia californica	California poppy
Plantaginaceae	**Plantain Family**
* *Plantago major*	Common plantain
Platanaceae	**Sycamore Family**
Platanus racemosa	Western sycamore
Plumbaginaceae	**Leadwort Family**
Limonium californicum	California marsh-rosemary
Primulaceae	**Primrose Family**
* *Anagallis arvensis*	Scarlet pimpernel
Salicaceae	**Willow Family**
Salix gooddingii	Goodding's black willow

Sapindaceae	**Soapberry Family**
* *Cupaniopsis anacardioides*	Carrotwood
Simaroubaceae	**Simarouba Family**
* *Ailanthus altissima*	Tree of heaven
Tropaeolaceae	**Trophy Family**
* *Tropaeolum majus*	Garden nasturtium
Ulmaceae	**Elm Family**
* *Ulmus parvifolia*	Chinese elm
Vitaceae	**Grape Family**
* *Vitis vinifera*	Cultivated grape
ANGIOSPERMAE: MONOCOTYLEDONAE	**MONOCOT FLOWERING PLANTS**
Arecaceae	**Palm Family**
* *Phoenix canariensis*	Canary Island date palm
Washingtonia filifera	California fan palm
* *Washingtonia robusta*	Mexican fan palm
Juncaginaceae	**Arrow-Grass Family**
Triglochin concinna	Arrow-grass
Poaceae	**Grass Family**
* *Avena fatua*	Common wild oat
* *Bromus diandrus*	Ripgut grass
* *Cynodon dactylon*	Bermuda grass
Distichlis spicata	Saltgrass
* *Lolium multiflorum*	Italian ryegrass
Monanthochloe littoralis	Shoregrass
* *Paspalum dilatatum*	Dallis grass
* *Poa annua*	Annual bluegrass

Taxonomy and scientific nomenclature conform to Hickman (1993). Common names for each taxa generally conform to Roberts (1998), although Abrams (1923, 1944, 1951) and Abrams and Ferris (1960) are used, particularly when species specific common names are not identified in Roberts (1998).

APPENDIX C

ANIMAL SPECIES OBSERVED

APPENDIX C
ANIMAL SPECIES OBSERVED

This is a list of the conspicuous insects, bony fishes, amphibians, reptiles, birds, and mammals noted in the study area by LSA biologist Matt Teutimez. Presence may be noted if a species is seen or heard, or identified by the presence of tracks, scat, or other signs.

* Species not native to the study area

\# Native species not observed during the survey but documented by FOCL

ANISOPTERA	**TYPICAL DRAGONFLIES**
Libellulidae	**Cruisers, Emeralds, Baskettails, and Skimmers**
Libellula saturata	Flame skimmer
LEPIDOPTERA	**BUTTERFLIES**
Pieridae	**Whites and Sulphurs**
* *Pieris rapae*	Cabbage white
Nymphalidae	**Brush-Footed Butterflies**
\# *Danaus plexippus*	Monarch
COLEOPTERA	**BEETLES**
Cicindelidae	**Tiger Beetle**
\# *Cicindelidia trifasciata sigmoidea*	SBanded Tiger Beetle
\# *Cicindelidia hemorrhagica hemorrhagica*	Wet Salts Tiger Beetle
REPTILIA	**REPTILES**
Phrynosomatidae	**Phrynosomatid Lizards**
Sceloporus occidentalis	Western fence lizard
AVES	**BIRDS**
Anatidae	**Ducks, Geese, and Swans**
Anas americana	American wigeon
\# *Anas clypeata*	Northern shoveler
\# *Anas cyanoptera*	Cinnamon teal
Anas platyrhynchos	Mallard

#	*Anas strepera*	Gadwall
#	*Aythya americana*	Redhead
	Aythya affinis	Lesser scaup
#	*Bucephala albeola*	Bufflehead
#	*Mergus serrator*	Red-breasted merganser
	Oxyura jamaicensis	Ruddy duck
Podicipedidae		**Grebes**
	Podilymbus podiceps	Pied-billed grebe
	Podiceps nigricollis	Eared grebe
	Aechmophorus occidentalis	Western grebe
Phalacrocoracidae		**Cormorants**
	Phalacrocorax auritus	Double-crested cormorant
Pelecanidae		**Pelicans**
#	*Pelecanus occidentalis*	Brown pelican
Ardeidae		**Herons, Bitterns, and Allies**
	Ardea herodias	Great blue heron
	Ardea alba	Great egret
	Egretta thula	Snowy egret
#	*Butorides striatus*	Green heron
	Nycticorax nycticorax	Black-crowned night-heron
Cathartidae		**New World Vultures**
	Cathartes aura	Turkey vulture
Accipitridae		**Hawks, Kites, Eagles, and Allies**
#	*Pandion haliaetus*	Osprey
	Buteo jamaicensis	Red-tailed hawk
	Accipiter cooperii	Cooper's hawk
Rallidae		**Rails, Gallinules, and Coots**
	Fulica americana	American coot
Charadriidae		**Plovers and Lapwings**
#	*Charadrius semipalmatus*	Semipalmated plover
#	*Charadrius vociferus*	Killdeer
#	*Pluvialis squatarola*	Black-bellied plover
Scolopacidae		**Sandpipers, Phalaropes, and Allies**
	Actitis macularius	Spotted sandpiper
	Limosa fedoa	Marbled godwit
	Calidris mauri	Western sandpiper
	Calidris minutilla	Least sandpiper

#	*Numenius phaeopus*	Whimbrel
	Tringa semipalmata	Willet
Laridae		**Gulls, Terns, and Skimmers**
	Larus delawarensis	Ring-billed gull
	Larus californicus	California gull
	Larus occidentalis	Western gull
#	*Larus glaucescens*	Glaucous-winged gull
#	*Larus heermanni*	Heerman's gull
#	*Sternula antillarum brownii*	California Least tern
Columbidae		**Pigeons and Doves**
*	*Columba livia*	Rock (Feral) pigeon
	Zenaida macroura	Mourning dove
Psittacidae		**Lories, Parakeets, Macaws, and Parrots**
*	*Aratinga reitrata*	Mitred Parakeet
Trochilidae		**Hummingbirds**
	Calypte anna	Anna's hummingbird
	Selasphorus sasin	Allen's hummingbird
Alcedinidae		**Kingfishers**
	Megaceryle alcyon	Belted kingfisher
Tyrannidae		**Tyrant Flycatchers**
	Sayornis nigricans	Black phoebe
	Tyrannus verticalis	Western kingbird
Corvidae		**Crows and Jays**
	Corvus brachyrhynchos	American crow
	Corvus corax	Common raven
Aegithalidae		**Long-Tailed Tits and Bushtits**
	Psaltriparus minimus	Bushtit
Mimidae		**Mockingbirds and Thrashers**
	Mimus polyglottos	Northern mockingbird
Sturnidae		**Starlings**
*	*Sturnus vulgaris*	European starling
Motacillidae		**Wagtails and Pipits**
	Anthus rubescens	American pipit
Parulidae		**Wood Warblers**
	Vermivora celata	Orange-crowned warbler

Dendroica coronata	Yellow-rumped warbler
Geothlypis trichas	Common yellowthroat
Emberizidae	**Emberizids**
Chondestes grammacus	Lark sparrow
Melospiza melodia	Song sparrow
Zonotrichia leucophrys	White-crowned sparrow
Icteridae	**Blackbirds**
Euphagus cyanocephalus	Brewer's blackbird
Fringillidae	**Fringilline and Cardueline Finches and Allies**
Carpodacus mexicanus	House finch
Passeridae	**Old World Sparrows**
* *Passer domesticus*	House sparrow
MAMMALIA	**MAMMALS**
Didelphidae	**Opossums**
*# *Didelphis virginiana*	Virginia opossum
Sciuridae	**Squirrels, Chipmunks, and Marmots**
* *Sciurus niger*	Eastern fox squirrel
Geomyidae	**Pocket Gophers**
Thomomys bottae	Botta's pocket gopher
Felidae	**Cats**
* *Felis catus*	House cat
Canidae	**Foxes, Wolves, and Allies**
*# *Vulpes vulpes*	Red fox
* *Canis lupus familiaris*	Feral dog
# *Canis latrans*	Coyote
Mephitidae	**Skunks**
# *Mephitis mephitis*	Striped skunk
Procyonidae	**Raccoons and Allies**
# *Procyon lotor*	Raccoon

Taxonomy and nomenclature are based on the following.

Butterflies: North American Butterfly Association (2001. NABA checklist & English names of North American butterflies, second edition. North American Butterfly Association, Morristown, New Jersey.).

Beetles: Hoback, W. Wyatt, and John J. Riggins. 2001. Tiger beetles of the United States. Jamestown, ND: Northern Prairie Wildlife Research Center Online. http://www.npwrc.usgs.gov/resource/distr/insects/tigb/index.htm (Version 12DEC2003).

Amphibians and reptiles: Crother, B.I., et al. (2000, Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in our Understanding, *Herpetological Circular* 29; and 2003 update) for species taxonomy and nomenclature; Stebbins, R.C. (2003, A Field Guide to Western Reptiles and Amphibians, third edition, Houghton Mifflin, Boston) for sequence and higher order taxonomy.

Birds: American Ornithologists' Union (1998, The A.O.U. Checklist of North American Birds, Seventh Edition, American Ornithologists' Union, Washington D.C.; and 2000, 2002, 2003, 2004, 2005, 2006, and 2007 supplements; see http://aou.org.whsites.net/checklist/index.php3).

Mammals: Wilson, D.E., and D.M. Reeder, eds. (2005. Mammal Species of the World, 3rd ed. Johns Hopkins University Press, Baltimore, Maryland; see http://nmnhgoph.si.edu/msw/).

APPENDIX D

JURISDICTIONAL DELINEATION AND DATA FORMS

SEE APPENDIX D OF THIS DRAFT EIR VOLUME 2

APPENDIX E

MARINE RESOURCES REPORT

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May 15, 2008

Craig Chalfant
City of Long Beach
Department of Development Services
333 West Ocean Boulevard, 5th Floor
Long Beach, CA 90802

Subject: Colorado Lagoon Marine Resources Report

Dear Mr. Chalfant:

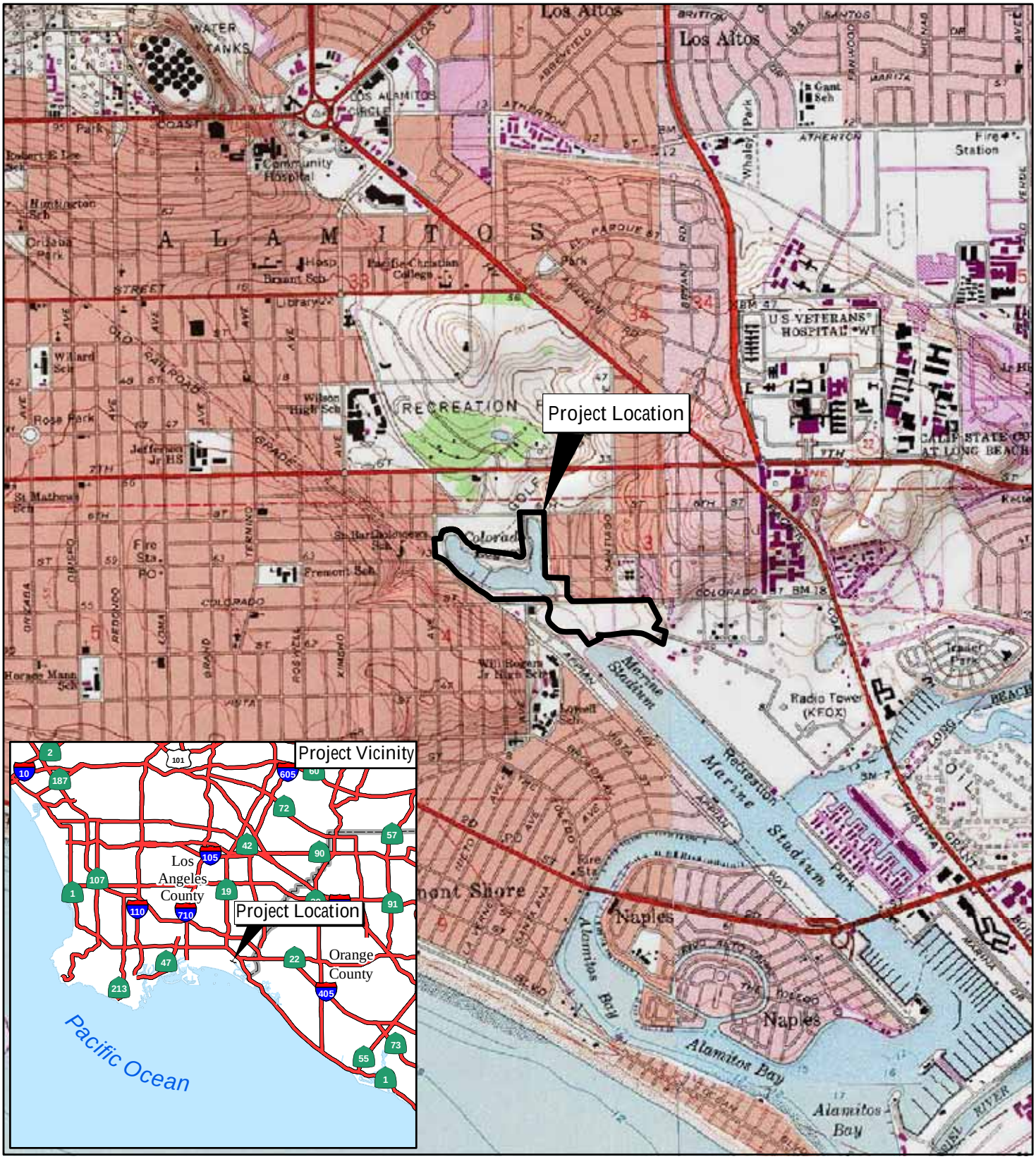
LSA Associates, Inc. (LSA) is pleased to submit the results of the Marine Resources Assessment for the Colorado Lagoon (Lagoon) Restoration Project (Project) located in the City of Long Beach (City), Los Angeles County, California (Figure 1). This assessment addresses the requirements of the California Environmental Quality Act (CEQA) (as amended January 1, 2007). This letter summarizes the existing settings and impacts to the marine environment as a result of the implementation of the Project. The study area includes the subtidal areas of the Lagoon and the intertidal areas, which together comprise approximately 11.7 acres (ac) (which is subject to change due to tidal influence) in the City. LSA consulted David Vilas, Senior Scientist from MBC Applied Environmental Sciences, who has 25 years of experience in the field of marine biology.

REGULATORY SETTING

The regulatory setting is described in detail in the Biological Resources Assessment prepared by LSA (LSA 2008). Permitting authorities and regulations pertaining specifically to Marine Resources are briefly summarized below.

United States Army Corps of Engineers

The United States Army Corps of Engineers (Corps) regulates discharges of dredged or fill material into waters of the United States. These waters include wetland and nonwetland bodies of water that meet specific criteria. Corps regulatory jurisdiction, pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 United States Code [USC] 403), regulates almost all work in, over, and under waters listed as "navigable waters of the United States" Corps regulatory jurisdiction, pursuant to Section 404 of the Clean Water Act (CWA), is founded on a connection, or nexus, between the water body in question and interstate commerce. This connection may be direct (i.e., through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce) or indirect (i.e., through a nexus identified in the Corps regulations). The following definition of waters of the United States is taken from the discussion provided at 33 Code of Federal Regulations (CFR) 328.3:



LSA

FIGURE 1

LEGEND

Project Boundary

N

0 1,000 2,000 Feet

Colorado Lagoon Restoration Project

Project Location Map

SOURCE: USGS 7.5' QUAD - Long Beach ('81); CALIF.

I:\clb0702\GIS\FIGURE_1.mxd (12/5/2007)

The term waters of the United States means:

(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce . . .

(2) All interstate waters including interstate wetlands

(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams) the use, degradation or destruction of which could affect interstate or foreign commerce

(4) All impoundments of waters otherwise defined as waters of the United States under the definition

(5) Tributaries of waters defined in paragraphs (a) (1)–(4) of this section.

In 2006, the United States Supreme Court further considered the Corps jurisdiction of "waters of the United States" in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* (126 S. Ct. 2208), collectively referred to as *Rapanos*. The Supreme Court concluded that wetlands are "waters of the United States" if they significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as navigable. On June 5, 2007, the Corps issued guidance regarding the *Rapanos* decision. This guidance states that the Corps will continue to assert jurisdiction over traditional navigable waters, wetlands adjacent to traditional navigable waters, relatively permanent nonnavigable tributaries that have a continuous flow at least seasonally (typically 3 months), and wetlands that directly abut relatively permanent tributaries. The Corps will determine jurisdiction over waters that are nonnavigable tributaries that are not relatively permanent and wetlands adjacent to nonnavigable tributaries that are not relatively permanent only after making a significant nexus finding.

Furthermore, the preamble to Corps regulations (Preamble Section 328.3, Definitions) states that the Corps does not generally consider the following waters to be waters of the United States. The Corps does, however, reserve the right to regulate the following waters on a case-by-case basis:

- Nontidal drainage and irrigation ditches excavated on dry land
- Artificially irrigated areas that would revert to upland if the irrigation ceased
- Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing
- Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons
- Water-filled depressions created in dry land incidental to construction activity and pits excavated in dry land for purposes of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States

Under Section 10 of the Rivers and Harbors Act of 1899, Corps jurisdiction over tidal waters of the United States extends from the ordinary low tide three (3) nautical miles seaward. Corps jurisdiction shoreward extends to the line on the shore reached by the mean high water. This jurisdiction extends

to this edge even though portions of the water body may be extremely shallow and are thus considered “navigable in law” although they may not be navigable in fact (33 CFR 329.12).

Waters found to be isolated and not subject to CWA regulation often are still regulated by the Regional Water Quality Control Board (RWQCB) under the State Porter-Cologne Water Quality Control Act (Porter-Cologne Act).

Regional Water Quality Control Board

The RWQCB has regulatory authority over waters of the United States pursuant to Section 401 of the CWA and waters of the State pursuant to the Porter-Cologne Act. The Corps cannot issue authorization for fill or discharge into waters of the United States without a Certification of Water Quality or waiver from the RWQCB.

The RWQCB can require mitigation measures above and beyond those required by the Corps or California Department of Fish and Game (CDFG). However, the mitigation proposed to satisfy the Corps and CDFG (discussed further below) typically meets RWQCB requirements to offset impacts to water quality.

RWQCBs develop and implement Water Quality Control Plans (Basin Plans) that incorporate all applicable State and regional plans and policies and other pertinent water quality policies and regulations, including the designation of regional beneficial uses. Beneficial use designations provide a framework for water quality protection. The designation of a beneficial use supports a guideline for establishing water quality objectives and programs that maintain or enhance water quality protection. The designated beneficial uses, along with State water quality objectives and federal regulations, together form water quality standards mandated by the California Water Code and CWA. Beneficial uses can be designated either as existing (i.e., uses already known to occur in the area) or as potential (i.e., uses not currently in place, but anticipated in the future).

Though not specifically listed for the Lagoon, 13 beneficial uses are designated in the Water Quality Control Plan for Coastal Watersheds of Ventura and Los Angeles Counties (Basin Plan) (LARWQCB 1994) for marine habitats adjacent or near the Lagoon, including Alamitos Bay, Marine Stadium, and the Los Cerritos wetlands and estuary channel. Although the first two are unlikely to apply to the Lagoon, these beneficial uses are:

- Industrial Service Supply (IND)
- Navigation (NAV)
- Water-contact Recreation (REC-1)
- Noncontact Water Recreation (REC-2)
- Commercial and Sport Fishing (COMM)
- Estuarine Habitat (EST)
- Wetland Habitat (WET)
- Marine Habitat (MAR)
- Wildlife Habitat (WILD)

- Rare, Threatened, or Endangered Species (RARE)
- Migration of Aquatic Organisms (MIGR)
- Spawning, Reproduction and/or Early Development (SPWN)
- Shellfish Harvesting (SHELL)

United States Fish and Wildlife Service and National Marine Fisheries Service

The Federal Endangered Species Act (FESA) of 1973 sets forth a two-tiered classification scheme based on the biological health of a species. The National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) and the United States Fish and Wildlife Service (USFWS) share responsibility for implementing FESA. Generally, USFWS manages land and freshwater species while NMFS manages marine and anadromous species. NMFS has jurisdiction over approximately 60 listed (endangered or threatened) species (Attachment A) and 42 species identified as "Species of Concern" (including candidate species) (Attachment B).

Endangered species are those facing extinction throughout all or a significant portion of their range. Threatened species are those likely to become endangered in the foreseeable future; Special Rules under Section 4(d) can be made to address threatened species. Ultimately, the FESA attempts to bring populations of listed species to healthy levels so that they no longer need special protection. Both "listed" and nonlisted "Species of Concern" are considered special-interest species and are analyzed in this report.

Section 9 of FESA prohibits the "take" of listed species by anyone unless authorized by the NMFS or the USFWS. Take is defined as "conduct which attempts or results in the killing, harming, or harassing of a listed species." Harm is defined as "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering." Harassment is defined as an "intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns, including breeding, feeding, or sheltering." Therefore, in order to comply with FESA, any proposed project should be assessed prior to construction to determine whether the project will impact listed species or, in the case of a federal action on the project, designated critical habitats. If no federal action is associated with the proposed project, and the project will result in take of listed species, authorization from the NMFS or USFWS in the form of a Section 10(a) take permit and an accompanying Habitat Conservation Plan (HCP) are required. If a federal action exists and the project may impact listed species or designated critical habitat, then consultation with the NMFS or USFWS is required through Section 7 of the FESA. That consultation can result in an incidental take authorization through a Biological Opinion as explained below.

Section 7 of FESA directs all federal agencies to use their existing authorities to conserve threatened and endangered species and, in consultation with the NMFS or USFWS, to ensure that their actions do not jeopardize listed species or destroy or adversely modify critical habitat. Section 7 applies to management of federal lands as well as other federal actions that may affect listed species, such as federal approval of private activities through the issuance of federal permits, licenses, or other actions.

Section 7(a)(2) of FESA requires all federal agencies, in consultation with and with the assistance of the Secretary of the Interior, to ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of critical habitat. This includes any federal action, including funding, licensing, permitting, authorizing, or carrying out activities under their jurisdictions. By law, Section 7 consultation is a cooperative effort involving affected parties engaged in analyzing effects posed by proposed actions on listed species or critical habitat(s).

Sea Turtles. All sea turtles are protected under the Endangered Species Act of 1973 and are listed as either endangered or threatened. The USFWS and the NMFS are the federal agencies charged with the responsibility of enforcing the provisions of the Act. The Endangered Species Act forbids the taking (including harassment, disturbance, capture, and death) of any sea turtles except as set forth in the Act. Therefore, none of the operational activities are legally permitted to disturb sea turtles or disrupt their activities or behavior in known migration routes, feeding areas, or breeding areas.

Marine Mammals. Marine mammals are protected by the Marine Mammal Protection Act of 1972 and, for those species listed as endangered or threatened, by the Endangered Species Act of 1973. NMFS is the federal agency charged with the responsibility of enforcing the provisions of the Act. The Marine Mammal Protection Act forbids the taking (including harassment, disturbance, capture, and death) of any marine mammals except as set forth in the Act. Therefore, none of the construction activities are legally permitted to disturb marine mammals or disrupt their activities or behavior in known migration routes, feeding areas, or breeding areas.

Migratory Bird Treaty Act. The Migratory Bird Treaty Act states "it is unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill…any migratory bird, any part, nest, or eggs of any such bird…included in the terms of the conventions between the United States and Great Britain for the protection of migratory birds concluded August 16, 1916 (39 Stat. 1702), the United States and the United Mexican States for the protection of migratory birds and game mammals concluded February 7, 1936, and the United States and the Government of Japan for the protection of migratory birds and birds in danger of extinction, and their environment concluded March 4, 1972."

Magnuson-Stevens Fishery Conservation and Management Act. The Magnuson-Stevens Fishery Conservation and Management Act (MSA) was authorized in 1996 and requires the NMFS to identify, conserve, and enhance Essential Fish Habitat (EFH) for those species regulated under a federal Fisheries Management Plan (FMP). EFH is defined as the waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. Specifically, the MSA requires: (1) federal agencies to consult with NMFS on all actions or proposed actions authorized, funded, or undertaken by the agency that could adversely affect EFH; (2) NMFS to provide conservation recommendations for any federal or State action that could adversely affect EFH; and (3) federal agencies to provide a detailed response in writing to NMFS within 30 days of receiving EFH conservation recommendations.

The proposed project is located within an area designated as EFH for both the Coastal Pelagic Species and Pacific Coast Groundfish FMPs.

California Department of Fish and Game

The California Endangered Species Act (CESA; California Fish and Game Code Sections 2050–2098) was signed into law in 1984. It was intended to parallel the federal act. CESA prohibits the unauthorized "take" of species listed as threatened or endangered under its provisions. However, a significant difference exists in the CESA definition of "take," which is limited to actually or attempting to "hunt, pursue, capture, or kill." CESA provisions for authorization of incidental take include consultation with a State agency, board, or commission that is also a State Lead Agency pursuant to CEQA; authorization of other entities through a 2081 permit; or adoption of a federal incidental take authorization pursuant to Section 2081.1. Similar to FESA, actions in compliance with the measures specified as a result of the consultation process or 2081 permit are not prohibited.

California Coastal Commission

The California Coastal Commission (CCC), through provisions of the California Coastal Act, is empowered to issue a Coastal Development Permit (CDP) for many projects located within the Coastal Zone. In areas where a local entity has a certified Local Coastal Program (LCP), the CCC can issue a CDP only if it is consistent with the LCP. The CCC, however, has appeal authority for portions of LCPs and retains jurisdiction over certain public trust lands and in areas without an LCP.

County of Los Angeles

The County of Los Angeles has assigned the zoning designation of Significant Ecological Areas (SEAs) to biologically important areas within Los Angeles County for the purpose of conserving biological diversity. SEAs are not preserves, but instead are areas where the County prioritizes balancing new development with resource conservation. The SEA program acts as a resource identification tool that aides in the conservation and management of biological resources. The SEA program is not enforced by the County on lands under the jurisdiction of incorporated cities.

Alamitos Bay, a proposed SEA, is connected to the Project area through a tidally influenced culvert. Alamitos Bay is one of two remaining salt marsh habitats within Los Angeles County and is in relatively good condition due to restrictions on public use. Estuaries and salt marshes are the interface between the terrestrial and marine habitats, and are important nutrient cycling centers for marine ecosystems. Estuaries and salt marshes are also important as a wintering ground for migratory birds. It is probable that the Belding's savannah sparrow *(Passerculus sandwichensis beldingi)* occurs in Alamitos Bay according to the draft SEA description for Alamitos Bay (County of Los Angeles 2008). This species is restricted to salt marsh habitat and has been placed on the State endangered species list. The Lagoon project area does not support suitable habitat for this species due to the highly degraded state of the coastal salt marsh present on site. The proposed SEA for Alamitos Bay does not place any restrictions on the proposed project activities in the Lagoon, and SEA regulations do not apply to areas within City boundaries (County of Los Angeles 2008).

METHODS

Literature Review and Records Search. A literature review and database records search were conducted on January 12, 2008, to identify the existence or potential occurrence of special-interest

biological resources (e.g., plant and animal species) in or within the vicinity of the Project area, which is depicted in Appendix A of the Biological Resources Assessment (LSA 2008).

LSA is aware of several biological studies that have been conducted on the Lagoon by other firms (e.g., Chambers, Keane Biological Consulting [Keane]). Previous biological reports prepared by other firms and wildlife data prepared by Friends of the Colorado Lagoon (FOCL) for the project area were reviewed as part of this analysis.

LSA conducted record searches in the California Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS) electronic databases for species expected to occur within the vicinity of the project area. Current electronic database records reviewed by LSA included the following:

- CNDDB information (i.e., RareFind 3.0.5), administered by the CDFG. This database covers lists of special-interest animal and plant species, as well as sensitive natural communities that occur within California.
- CNPS Electronic Inventory of Rare and Endangered Vascular Plants of California (Skinner and Pavlik 1994), which identifies four specific designations, or "Lists," of special-interest plant species and summarizes regulations that provide for the conservation of special-interest plants. Following is an excerpt from the CNPS Inventory section that deals with CEQA and special-interest plant conservation (see Table A):

  > The DFG recognizes that Lists 1A, 1B, and 2 of the CNPS Inventory consist of plants that, in a majority of cases, would qualify for listing [pursuant to CEQA Guidelines Section 15380], and the Department recommends they be addressed in Environmental Impact Reports (EIR).

Table A: California Native Plant Society Special-Interest Plant Species Designations

List	Classification
1A	Presumed extinct in California
1B	Rare or endangered in California and elsewhere
2	Rare or endangered in California; more common elsewhere
3	Need more information
4	Plants of limited distribution

In addition to these resources, other sensitive species known by LSA to occur in the general area were also considered.

Fieldwork was conducted by LSA biologist Matt Teutimez with the assistance of FOCL member and biologist Eric Zahn on January 11, 2008, to determine the biological resources of the project area and to quantify and map existing terrestrial and intertidal habitat communities. The general survey was conducted on foot and included habitat community identification and a survey of biological resources within the terrestrial and intertidal areas of the project area. Resource mapping was accomplished by using a 2006 aerial photograph (scale: 1″=100′) of the project area. The habitat communities were mapped on the aerial photograph, and the locations of any species of interest were labeled. All

wildlife and plant species observed directly or otherwise were separately noted, and the suitability of the habitat within the project area to support any special-interest wildlife species was considered.

During the course of the survey described above, LSA assessed the biological condition of the project area, including vegetation, wildlife, and suitability of habitat for the presence of various special-interest species. Lists of the vascular plant and animal species observed are respectively attached as Appendices B and C of the Biological Resources Assessment (LSA 2008). Protocol surveys for wildlife species (e.g., Belding's savannah sparrow) were not conducted. Similarly, a focused rare plant survey was not conducted, but a general plant and animal inventory was taken. Subtidal (underwater) surveys were previously conducted by Chambers in 2004, but were not resurveyed by LSA.

The fieldwork for the jurisdictional waters evaluation was conducted by LSA biologists Jim Harrison and Elizabeth Delk on December 5, 2007, and by Elizabeth Delk and Matt Teutimez on February 4, 2008. The project area was surveyed on foot, and all areas of potential jurisdiction were evaluated according to Corps, CDFG, and CCC criteria. Data were recorded directly on the field maps. Field maps of the area to be surveyed were prepared using a 2006 aerial photograph (scale: 1″=100′). The jurisdictional delineation and data forms can be found in Appendix D of the Biological Resources Assessment (LSA 2008).

EXISTING SETTINGS

The Lagoon, Marina Vista Park, and a small portion of Marine Stadium (proposed project area) consists of approximately 48.61 ac in the City. The Lagoon is located in a park setting and is owned and maintained as a City park by the City Department of Parks, Recreation, and Marine. Existing improvements include the Lagoon habitat, a wetland and marine science education center, a picnic area, and play equipment. The topography in the project vicinity is relatively flat with a gently sloping transition from the Lagoon waters to upland areas. The project area is dominated by the Lagoon, an 11.7 ac (during average tides) tidal water body that is connected through an underground tidal culvert to Marine Stadium, which is connected to Alamitos Bay and the Pacific Ocean. The proposed project area includes the Lagoon as well as adjacent park land areas. The historical Los Cerritos Wetlands were dredged in the 1920s to form the Lagoon, which has subsequently been used for a variety of public and private recreational events.

The project site historically consisted of coastal salt marsh. The ecological health of the Lagoon has been deteriorating for several decades as a result of pollutant accumulation and heavy sediment deposition and marine growth, which has impaired the ability of the Lagoon to flush during low tides and has led to increased degradation of water quality. The Lagoon is listed on California's 303(d) list of impaired water bodies due to elevated levels of lead, zinc, chlordane, and polycyclic aromatic hydrocarbons (PAHs) in the sediment; and chlordane, dichloro-diphenyl-trichloroethane (DDT), dieldrin, and polychlorinated biphenyls (PCBs) in fish and mussel tissue; and sediment toxicity. In addition, testing confirmed the presence of PCBs, cadmium, copper, mercury, and silver as secondary contaminants of concern. Bacterial contamination of the Lagoon water is a major issue, and beach advisory postings due to elevated bacteria levels are frequent. The original vegetative communities have been largely eliminated or degraded due to urban runoff that drains into the Lagoon from 11 storm water drains. The Lagoon is a natural low point in the watershed, and it accumulates pollutants deposited over the entire watershed that are conveyed by storm flows and dry weather runoff. Additionally, sediment deposition and marine growth have reduced the capacity of the culvert,

resulting in a lack of tidal flushing at low tides and increased degradation of water quality. Some isolated stands of coastal salt marsh occur within highly degraded habitat along the shoreline of the Lagoon.
This report supplements the Biological Resources Assessment and discusses mainly the marine and subtidal biological resources in the project area. Information regarding terrestrial habitat and biological resources can be found in the Biological Resources Assessment (LSA 2008).

Marine Communities and Elevation Categories

Aquatic vegetation in the Lagoon has been described in the past by Chambers (2004). Their analysis included taking core samples of sediment and seining for fish. The majority of the Lagoon substrate is soft mud with a heavy cover of algae. Temperature and salinity levels stay relatively constant throughout the year, but oxygen and nutrient levels vary (Chambers 2004). The species composition is dominated by introduced species tolerant of disturbance and fresh water. Dominant species in the northern arm included gut weed *(Enteromorpha intestinalis)* and sea lettuce *(Ulva lobata)*, while red algae (*Gracilaria* sp.) dominated benthic areas of the western arm. Few scattered eelgrass *(Zostera marina)* plants have been observed in past reconnaissance dives (Chambers 2004). Three eelgrass locations from past surveys conducted in the Lagoon are mapped in the 2004 report provided by Chambers and depicted in Figure 2. Generally, eelgrass is found at shallow subtidal depths, but it can be found in moderate subtidal depths, as discussed in more detail below and in the Biological Resources Assessment.

Eelgrass beds are a productive source of food and shelter for a wide variety of marine life. Eelgrass habitats rank among the most productive habitats in the ocean due to a rapid growth rate and great diversity of associated invertebrate and fish fauna (United States Department of the Navy [USDoN] 1999). Eelgrass is a flowering marine plant that grows within soft sediments of estuaries and bays. Eelgrass canopies grow up to 3 ft in height and attract invertebrates and fish that live among the shoots, within the canopy, or in the soft sediments that cover the roots and rhizomes. The vegetation also serves a nursery function for many juvenile fishes, including species of commercial and/or sport fish value such as California halibut *(Paralichthys californicus)* and barred sand bass *(Paralabrax nebulifer)*. Eelgrass beds are critical foraging centers for seabirds such as the endangered California least tern *(Sternula antillarum brownii)* that seek out baitfish such as juvenile topsmelt *(Atherinops affinis)* attracted to the eelgrass cover. Additionally, eelgrass beds help to disperse wave action, decrease erosion, and prevent resuspension of fine sediments back into the water column (USDoN 1999). Finally, eelgrass is an important contributor to the detrital (decaying organic) food web of bays, as the decaying plant material is consumed by many benthic invertebrates (such as polychaete worms) and reduced to primary nutrients by bacteria. Eelgrass has been mapped in both the Lagoon and the neighboring Marine Stadium (Chambers 2004; County of Los Angeles 2007).

The surrounding land uses and habitat within the Lagoon have not changed since the 2004 study (Chambers 2004). A comparison by Chambers indicated that the fish community in the Lagoon in 2004 was essentially the same as the fish community in the Lagoon in 1973. The habitat characterization of the subtidal and tidal portions of the project area remains essentially unchanged. Dominant invertebrates included the gelatinous colonial bryzoan *(Zoobytron verticullatum)* and the solitary tunicate *(Styela plicata)*. Clam species collected during the July 2004 survey included smooth chione *(Chione fluctifraga)*, common littleneck *(Protothaca staminea)*, California jackknife clam *(Tagelus californianus)*, and Philippine cockle *(Venerupis philipinarum)*.

LSA

FIGURE 2

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FEET

SOURCE: Chambers Group, Inc.

Colorado Lagoon Restoration Project

2004 Vegetation Communities, Sample Points and Eelgrass Locations within the Lagoon

I:\CLB0702\G\Eelgrass LocsRevised (5/7/08)

In benthic community surveys conducted in 2004, a total of 35 taxa of invertebrates were collected in nine cores in the Lagoon (Chambers 2004). Densities of organisms ranged from 2,089 individuals of 18 species per square meter in the north arm to 3,822 individuals of 26 species per square meter in the central Lagoon. Though invertebrate density in the west arm was median to these other sites, with 2,930 individuals per square meter, only four invertebrate taxa were collected; a notably reduced diversity in the west arm and indicating environmental stress in the area. The diminished biodiversity of benthic organisms in the western arm of the Lagoon may have been a result of several factors including, but not limited to, poor water quality, low dissolved oxygen, sediment contamination, or a combination of these or other factors. The available data are not sufficient to determine if the low diversity was caused by contaminated sediment.

Beach seines conducted for fish in the Lagoon in July 2004 caught 18,903 individuals of 13 species of fish in three seines (Chambers 2004). Seine abundances ranged from 2,246 individuals taken in the north arm to 12,061 individuals in the western arm, with 4,596 individuals taken in the central portion. The number of species was similar in all three areas, with nine species found in the central and northern areas and eight in the western arm. Dominant fish species included topsmelt, which accounted for 99 percent of the total catch, arrow goby *(Clevelandia ios)*, and California killifish *(Fundulus parvipinnis)*, each contributing about 0.3 percent to the total abundance. The remaining ten species each accounted for 0.1 percent or less of the catch abundance. Absence of the second most abundant species, arrow goby, a burrow-living species, in the west arm was suggested to be related to sediment contamination, low dissolved oxygen, or a combination of these or other factors near the bottom of the Lagoon, although a few individuals of four other goby species were taken. Both topsmelt and round stingray *(Urobatis halleri)*, however, were particularly abundant in the western arm. All round stingray taken in 2004 were female and most were gravid, suggesting that the Lagoon serves as a spawning area for the species.

In surveys conducted in 1973, northern anchovy *(Engraulis mordax)* dominated the fish catch in the Lagoon, although abundances were found to be highly seasonal (Allen 1976). Topsmelt were the second most abundant species taken during these surveys (Allen and Horn 1975). Northern anchovy, like topsmelt, are a schooling species that may occasionally be found in very dense abundances. Unlike topsmelt, however, northern anchovy are more variable on a seasonal and yearly basis, and differences in abundances of the species from year to year are not uncommon (Chavez et al. 2003).

A total of 46 fish species have been reported in surveys conducted in 1968, 1971, 1973, and 2004 (Allen 1976, Chambers 2004). Two species were reported for the first time in 2004: California needlefish *(Strongylura exilis)*, taken occasionally in southern California embayments, and yellowfin goby *(Acanthogobius flavimanus)* an introduced, nonnative species. Although only 13 fish species were taken in 2004, previous studies included additional collection methods and seasonal surveys, and results from the 2004 survey appear to be representative of the fish populations expected from previous summer seining surveys. Conditions at the Lagoon and surrounding areas are not expected to have changed notably since the 2004 baseline survey.

Several marine mammal species could potentially occur within Alamitos Bay and possibly in Marine Stadium, although none are known to be reported from the Lagoon. Two pinniped species are relatively common offshore and in southern California embayments: California sea lion *(Zalophus californianus californianus)* and Pacific harbor seal *(Phoca vitulina richardsi)*. Both species may be observed in the water and hauled out on the outside breakwaters and on navigation buoys in the bay. A third pinniped species, northern elephant seal *(Mirounga angustirostris)* could potentially occur in the area, but there are no known sightings within the bay. Cetaceans may be observed nearshore

outside the bay but would be expected to be relatively uncommon inside Alamitos Bay and not expected within Marine Stadium. Species commonly observed nearshore include common dolphin *(Delphinus delphis)*, gray whale *(Eschrichtius robustus)*, Pacific white-sided dolphin *(Lagenorhynchus obliquidens)*, and Pacific bottlenose dolphin. All marine mammals are protected under the Marine Mammal Protection Act of 1972.

Three species of sea turtles that occur off southern California and a fourth species could potentially occur in Marine Stadium. All four species have broad, worldwide ranges and are highly migratory. Green turtle *(Chelonia mydas)*, loggerhead turtle *(Caretta caretta)*, and leatherback turtle *(Dermochelys coriacea)* are known to occur off Orange and Los Angeles Counties. Olive Ridley sea turtle *(Lepidochelys olivacea)* was sighted off San Diego in 1973 and could potentially occur in the region (MBC 2002). All green, leatherback, and olive Ridley sea turtles that could occur in the area are listed as endangered under the Endangered Species Act of 1973, as amended. Leatherback sea turtle is listed as threatened throughout its range. At least one species (likely green sea turtle) has been spotted on several occasions near the mouth of the San Gabriel River and within Alamitos Bay (MBC unpublished data), although none are known to be reported from the Lagoon or Marine Stadium.

The current bathymetry of subtidal and low intertidal water depths is discussed below and presented in Table B.

Table B: Existing Elevation Categories of Colorado Lagoon

Tidal Depths	Existing Area (acres)
Deep Subtidal (>15 ft below MSL)	0.638
Moderate Subtidal (7 to 15 ft below MSL)	6.733
Shallow Subtidal (4 to 7 ft below MSL, principal eelgrass depths)	1.246
Low Intertidal (4 to 1.75 ft below MSL)	1.695
Total Marine Habitat	**10.312**

ft = feet
MSL = mean sea level

Although considered somewhat degraded, the aquatic habitat of the Lagoon supports some eelgrass and several important plant and animal species, such as cordgrass *(Spartina foliosa)* and tiger beetles (*Cicindelidae* spp.), within intertidal areas. Habitats in the Marine Open Water and Subtidal portions of the project area are arranged by depth as they relate to mean sea level. For the purposes of analyzing the existing subtidal and intertidal habitats, the following depth categories are used based on the research done for the Port of San Diego (USDoN 1999). However, the species and functions associated with these depth categories frequently overlap.

Deep Subtidal (>15 ft below MSL). The approximate acreage of Lagoon habitat that falls within this depth category is 0.638 ac, as shown in Table B. This category represents the deepest portions of the Lagoon. The deeper water is used by a variety of species, including vertebrates, invertebrates, and plants. Some spend only a portion of their lifecycles within the open water habitat. Phytoplankton and zooplankton populations are an important component of the deep subtidal range because they are the primary source for many organisms within this habitat. Plankton movements and distribution are

almost entirely dependent on currents and tides (USDoN 1999). Several invertebrate and fish species spend portions of their lifecycles as zooplankton and require access to the deeper waters for transport into and out of the ocean. Many invertebrates, birds, and fish utilize the plankton as a primary food source. Thus, an important function of the deep subtidal environment is the transport and distribution of plankton into and out of the Lagoon. This habitat in the Lagoon is currently functionally limited by the muted tidal exchange through the culvert.

Moderate Subtidal (7 to 15 ft below MSL). Approximately 6.733 ac of the open water surface area falls into this depth category. This depth range remains completely subtidal. This depth category supports similar habitat functions as the deeper waters described above. In addition, the endangered California least tern and brown pelican *(Pelecanus occidentalis)* forage in these areas. This category also represents the lower extent of eelgrass habitat (USDoN 1999).

Shallow Subtidal (4 to 7 ft below MSL, principal eelgrass depths). The Shallow Subtidal areas within the Lagoon are approximately 1.246 ac. Fish, particularly schooling or aggregating species, are typically abundant at these depths. Consequently, the majority of migratory birds and water birds use these areas more than other subtidal categories. This habitat is continually submerged and is characterized by a soft substrate that shifts in response to tides, winds, currents, and disturbance by humans and wildlife. Eelgrass is one of the few plant species adapted to utilize such a substrate, and eelgrass primarily occurs at these depths. Beds of eelgrass form a very important and productive benthic habitat in bays and lagoons. Faunal organisms here occupy various depths within the substrate. Invertebrates such as sponges, gastropod mollusks, and some larger crustaceans and tunicates live on the sediment surface. An important structural component of unvegetated shallows is the presence of extensive mats of living algal material interspersed with areas of exposed sediment that may extend into the intertidal zone. Algal mats also are an important habitat feature because they may provide cover or refuge from predators for many species of motile invertebrates and fishes. The algae also appear to serve as a food source for some invertebrates. The living plant material and detritus constitute a primary food source for California killifish and other fish, crabs, isopods, gastropod mollusks, and some aquatic birds (USDoN 1999). Unvegetated shallow substrate at this depth is an important nursery site for the California halibut and some other similar bottom-dwelling fish species. Many fishes that occur in the shallow subtidal depths also occur in the low intertidal zones. Factors that determine the community structure of the soft bottom include sediment grain size, grain compaction, water content, drainage (stagnant or flushed), dissolved oxygen levels, levels of organic material deposited, and pollutant contamination. These characteristics are affected by depth, slope of the bottom, currents, and other physical and chemical characteristics of the water above the bottom (USDoN 1999).

Low Intertidal (4 to 1.75 ft below MSL). Low Intertidal areas overlap with Low Marsh and Shallow Subtidal, but for the purposes of this discussion they are mapped within approximately 1.695 ac of surface area in the Lagoon. This zone is characterized as having various degrees of tidal submergence. Shorebirds depend on the intertidal zone for foraging, roosting, and resting. Low Intertidal areas contain portions of mudflats and populations of cordgrass, a lower-elevation salt marsh species. Mudflats, in general, support very little vegetation other than green algae and occasional beds of eelgrass. The mudflats of the Lagoon do not support any vegetation, but they do support invertebrate species such as mollusks, crustaceans, worms, California horn snail *(Cerithidea californica)*, and tiger beetles. The mudflats form a contiguous strand around the Lagoon, with the

most productive areas located around the north and west arms of the Lagoon and degraded mudflats in front of the sandy beaches. The Lagoon mudflats provide a consistent feeding area for many migrating and resident shorebirds and waterfowl such as marbled godwit *(Limosa fedoa),* American widgeon *(Anas americana),* and Ruddy duck *(Oxyura jamaicensis)*. The western edge of the west arm has a concentrated area of productive mudflats that supports a population of tiger beetles at the Lagoon.

Nonaquatic Communities and Elevation Categories

While the following three depth categories do not represent aquatic habitats, they are discussed below in order to gain a greater perspective on the zoning of the Lagoon habitat and to illustrate the existing setting in terms of elevation categories. Coastal salt marsh can be divided into more or less distinctive zones based upon vegetation patterns. These patterns are related to elevation and degree of inundation, and are termed Low, Mid, and High Marsh (Zedler et al. 1992). The salt marsh at the Lagoon has been degraded from a natural three-tier coastal salt marsh plant community (i.e., lower, middle, upper) (Zedler 2000) to a remnant strip of a middle marsh plant community dominated by common pickleweed *(Salicornia virginica),* saltwort *(Batis maritima),* and jaumea *(Jaumea carnosa).* Existing salt marsh present at the Lagoon is discussed in more detail in the Biological Resources Assessment (LSA 2008).

Low Marsh (1.75 ft below to 1.5 ft above MSL). The lower marsh is characterized by cordgrass grading into pickleweed. Cordgrass, which may be up to 3 ft tall and half submerged, spreads through the habitat with buried rhizomes and less commonly from seed. Pickleweed occurs in areas that are inundated by only the highest tides (USDoN 1999).

Mid Marsh (1.5 to 2.75 ft above MSL). The Mid Marsh habitat is typified by the presence of saltwort, pickleweed, estuary sea-blite *(Sueda esteroa),* alkali heath *(Frankenia grandifolia),* and arrow grass *(Triglochin concinna)* (Zedler et al. 1992).

High Marsh (2.75 to 5.0 ft above MSL). High Marsh areas are generally characterized by glasswort, salt grass, and shore grass (Zedler et al. 1992). Salt marsh bird's beak *(Cordylanthus maritimus* spp. *maritimus),* a federally and State-listed endangered species, occurs in the High Marsh zone.

PROJECT DESCRIPTION AND PHASING

The proposed project consists of the following components.

- **Improvements Benefiting Water and Sediment Quality**
  - Clean culvert, remove tidal gates, and remove sill/structural impedances
  - Build open channel between the Lagoon and Marine Stadium
  - Remove contaminated sediment in the western arm of the Lagoon
  - Remove sediment in the central Lagoon

  - Storm drain upgrades
  - Replace local hard drain outlets in the Lagoon with a vegetated bioswale

- **Habitat Improvements**
  - Removal of north parking lot and access road, side slope recontouring, and revegetation
  - Import and plant eelgrass in the Lagoon
  - Develop Bird Island

- **Recreational Improvements**
  - Construct a walking trail around the Lagoon and open channel
  - Reconfigure the sports fields in Marina Vista Park

- **Operational Components**
  - Implement trash management protocols
  - Implement bird management protocols
  - Modify sand nourishment practices

- **Planning Components**
  - LCP Amendment
  - Zoning Code Amendments

It is anticipated that Phase 1 would involve the improvements at the Lagoon and to the existing culvert connecting the Lagoon and Marine Stadium, and Phase 2 would involve improvement within Marina Vista Park. Specifically, the improvements within Marina Vista Park are anticipated to occur at least 1 year following the commencement of Lagoon improvements, depending upon the availability of funding. The construction of Phase 1 improvements is estimated to take approximately 10 months. The construction of Phase 2 improvements is estimated to take approximately 15 months, plus an additional 6 months for turf reestablishment on the sports fields in Marina Vista Park. The project components of each phase are listed below.

- **Phase 1: Lagoon Improvements**
  - Clean culvert and remove tidal gates, sill, and other structural impedances at the culvert.
  - Dredge the western arm and central Lagoon areas.
  - Implement storm drain upgrades, including the development of a storm water diversion system and bioswales.
  - Remove the north parking lot and access road, and the restroom on the north shore of the Lagoon.
  - Recontour Lagoon side slopes, develop Bird Island, revegetate land areas, and plant eelgrass.
  - Develop the walking trail and viewing platform at the Lagoon.

- **Phase 2: Marina Vista Park Improvements**

- Construct two roadway bridges spanning the open channel at East Colorado Street and East Eliot Street. Demolish and replace two public restrooms. Build the open channel between the Lagoon and Marine Stadium.
- Develop the walking trail on the eastern side of the open channel and vegetation buffers on both sides of the channel.

The open channel will be constructed by excavating the soil above and along the sides of the concrete culvert. The culvert would remain operational during this period. Following soil excavation, the culvert would be plugged to prevent water flow through it, and water would be removed from inside the culvert via a pump. After the culvert is drained of water, the culvert demolition would begin in the center of the culvert. The culvert would be demolished, debris removed, and the underlying soil would be excavated. That particular section of the channel would be fully built (erosion control blankets and riprap). After one section is complete, construction of the channel would move outward toward each end, demolishing the culvert and building the channel until both ends were reached. During the construction period, the ends of the culvert will be opened periodically to convey flows from/to the Lagoon through the remaining culvert sections and newly constructed open channel stretch. Following this tidal flushing, the culvert ends would be closed again, water pumped out, and culvert demolition/open channel construction would continue along a new section. This process would repeat until both ends are reached. The remaining culvert end sections would be demolished, the channel ends breached (at low tide), and the new tidal connection would be established.

As described, demolition of the existing concrete culvert and construction of the open channel will eliminate the tidal connection during portions of the construction activities. Because this may lead to stagnation and water quality problems, the culvert will be opened periodically during spring tides to convey flows to Marine Stadium and allow tidal flushing to occur. The culvert will be opened once every 2 weeks during the construction activities that will close the tidal connection (culvert and open channel components). The opening will occur during the period of the greatest tidal fluctuations for 2 to 3 days to allow for maximum exchange. Construction of the open channel may take place during wet months, which may require the channel to be opened more frequently to allow storm flows to dissipate. In addition to coordination with the tidal regime, two subsurface aeration systems will be installed and utilized to maintain water quality during construction periods, which close the tidal connection.

There are two methods related to dredging and disposing of the contaminated sediment within the western arm of the Lagoon. The dry dredge method would install a temporary cofferdam just west of the footbridge to isolate the west arm of the Lagoon for dredging. The dredge area would be drained of water, and the bottom sediment would be dewatered. An excavator would be used to remove the dry sediment, which would be temporarily stockpiled in the parking lot along the Lagoon's north shore. Plastic tarps and containment structures would be placed under and around the stockpile area to minimize runoff back into the Lagoon and surrounding areas. Due to the contamination levels within the western arm of the Lagoon, the dredge materials from this Lagoon location would be hauled to a Class I hazardous waste disposal facility or an approved Port of Long Beach site via truck.

The wet dredge method would not require dewatering the west arm of the Lagoon prior to dredging. The dredge area would be isolated by a silt curtain to maintain water quality. Clamshell/bucket-type dredging equipment would be used, and temporary shore-perpendicular berms or piers would be built into the Lagoon to allow the dredger to access depths not within its reach from the Lagoon's shores. Similar to the first method, the dredged material would be temporarily stockpiled in the parking lot along the northern shore until it was drained and loaded onto trucks. Plastic tarps and containment

structures would be placed under and around the stockpile areas to minimize runoff back into the lagoon and surrounding areas.

The sediments in the central Lagoon contain levels of lead, mercury, silver, DDT, and chlordane that are not hazardous per State standards. This project component would remove sediment and sand that has eroded and been deposited into the Lagoon waters over the years and create a larger subtidal area. Approximately 5,500 cubic yards of sediment would be removed from the central Lagoon utilizing the wet dredge method discussed previously. Because the sediment from the central Lagoon is not considered hazardous, it could be reused on site for landscaping at the Lagoon.

While "dry" excavation may result in a larger initial loss based on area impacted, it will also recover following inundation by seawater. Other temporary impacts associated with construction include physical disturbance, noise and releases of excavated sediments and water into the local environment. No physical disturbance of local resources other than the benthic habitat is anticipated. These impacts will be temporary, lasting for the duration of project construction. Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the local environment. Turbidity from dredging can interfere with filter-feeding subtidal organisms and introduce contaminants into areas not previously impacted. Implementation of BMPs, such as the use of silt curtains, will minimize impacts associated with turbidity and sediment redistribution and will be required for all construction phases to minimize impacts. Therefore, due to the temporary nature of the impacts and the ability of benthic communities to recover rapidly following disturbance, impacts to benthic communities are anticipated to be minimal.

IMPACTS TO MARINE RESOURCES

Marine Wildlife and Movement

The Lagoon may potentially function as a movement corridor for organisms that spend part of their lifecycles in the Lagoon and a portion in the ocean. However, the culvert that connects the Lagoon to other bodies of water, including the Pacific Ocean, is partially blocked, and flows are restricted. The extensive recreational and residential development surrounding the project area contributes to isolation of the Lagoon and decreased habitat function and values. Therefore, the project area currently does not function as a high-quality marine life movement corridor.

Essential Fish Habitat

The proposed project is located within an area designated as EFH by NMFS for both the Coastal Pelagic Species and Pacific Coast Groundfish FMPs. Of the 93 fish and one (1) invertebrate species listed in these management plans, two (2) species have been collected in the Lagoon based on fish sampling conducted in the Lagoon in 1968, 1971, 1973, and 2004 (Allen 1976; Chambers 2004). Northern anchovy is listed among the coastal pelagic managed fish species and has been collected multiple times in the Lagoon. Other coastal pelagic managed fish species with potential to occur in the Lagoon based on occasional collections in Alamitos Bay and Los Cerritos Channel include: Pacific sardine *(Sardinops sagax)*, jack mackerel *(Trachurus symmetricus)*, and Pacific mackerel *(Scomber japonicus)*. Cabezon *(Scorpaenichthys marmoratus)*, covered under the Pacific Coast Groundfish FMP, was reported in the Lagoon in 1968 but not since. Although not reported in sampling, several additional groundfish species have a low potential of occurring in the Lagoon based on observations at similar sites, including: big skate *(Raja binoculata)*, California skate *(Raja*

inornata), leopard shark *(Triakis semifasciata),* California scorpionfish *(Scorpeana guttata),* English sole *(Parophrys vetulus),* and juveniles of some species of rockfish (*Sebastes* spp.).

Dredging, excavating, recontouring, and filling will all result in a temporary loss of subtidal benthic habitat. The benthic community, those species that are associated with the bottom, including fish such as gobies, will be disturbed and many lost during construction and dredging. However, these species reproduce quickly and in large numbers and are well adapted to repopulate an area following disturbance. Recruits from other areas of the Lagoon or the Marine Stadium will rapidly recolonize the habitat after completion of sediment modifications. The community is expected to be colonized by a similar suite of species that is currently found in the area, and construction will not result in a permanent loss. Similarly, construction-related reduction in area or water quality of the EFH of the Lagoon will be temporary, with project improvements resulting in an enhancement of water quality and an increase in area of open water available to managed fisheries species.

Benthic Communities

Construction impacts resulting from all portions of the project involving earthmoving equipment will cause a temporary reduction in population numbers of sessile organisms and algae as well as create temporary turbidity due to construction. However, Best Management Practices (BMPs) will be incorporated into the project to ensure that potential impacts from the construction phase of the project will be minimized.

Aquatic communities within the culvert would be impacted during the culvert cleaning portion of the proposed project. The culvert cleaning would be conducted in a dry state by dewatering the culvert prior to work. The work would be conducted in an enclosed space (without tidal flow), and sediment, trash, and marine growth would be removed via excavator and hauled off site. Therefore, no impacts to the subtidal or terrestrial communities adjacent to the culvert openings would result. However, mortality of algae and sessile attached organisms would result from the culvert cleaning activities. Impacts to the algae and benthic organism populations would be temporary in nature because benthic organisms and algae would quickly reestablish within the improved portions of the Lagoon and Marine Stadium. Benthic organisms that would be removed as a result of culvert cleaning do not include any special-interest plants or animals.

Dredging, excavating, recontouring, and filling will all result in a temporary loss of subtidal benthic habitat. The benthic community, including invertebrates such as worms and clams, will be disturbed, with many lost during construction and dredging. However, these species reproduce quickly and in large numbers and are well adapted to repopulate an area following disturbance. Recruits from other areas of the Lagoon or the Marine Stadium will rapidly recolonize the benthic habitat after completion of sediment modifications. The community is expected to be colonized by a similar suite of species that is currently found in the area, and construction will not result in a permanent loss.

Marine Plants

Disturbance to the subtidal environment through wet dredging and fill activities may indirectly contribute to the propagation of the invasive seaweed *Caulerpa (Caulerpa taxifolia).* Therefore, measures to identify and remove the invasive algae will be incorporated as Recommended Mitigation Measure 1 and will reduce impacts to a less than significant level. In the event that *Caulerpa* is

detected, disturbance shall not be conducted until the risk of spread is eliminated. Dry dredging techniques likely would meet the requirements to eliminate contamination from the project.

Dredge and fill activities also may result in a temporary loss of eelgrass and/or subtidal eelgrass habitat. Small patches of eelgrass currently exist in the Lagoon; they would be supplemented by planting additional eelgrass and creating eelgrass beds as part of the project design. Additionally, any eelgrass loss would be mitigated by transplanting eelgrass into the area at a minimum 1.2 to 1 ratio as described below in Recommended Mitigation Measures MM BIO 2-5. Additionally, the project proposes to increase eelgrass habitat by recontouring the Lagoon subtidal and intertidal areas as shown below in Table C.

Table C: Existing and Proposed Elevation Categories of Colorado Lagoon

Tidal Depths	Existing Area (acres)	Proposed Area (acres)	Percent Change
Deep Subtidal (more than 15 ft below MSL)	0.638	1.866	+192.4%
Moderate Subtidal (7 to 15 ft below MSL)	6.733	5.139	-23.7%
Shallow Subtidal (4 ft to 7 ft below MSL, principal eelgrass depths	1.246	2.318	+86.0%
Low Intertidal (4 to 1.75 ft below MSL)	1.695	1.693	-0.1%
TOTAL SUBTIDAL HABITAT	**10.312**	**11.016**	**+6.8%**

Marine Mammals and Sea Turtles

Marine mammals and sea turtles have not been reported from the Lagoon and are highly unlikely to be found in the Lagoon. Foraging marine mammals and sea turtles have the potential to occur in the neighboring Marine Stadium. However, these animals are highly mobile and capable of dispersing away from any disturbances. Construction disturbances in the Lagoon are unlikely to affect marine mammals or sea turtles that have the potential to occur in Marine Stadium because the minor disturbances, such as turbidity and equipment noise, within Marine Stadium will be confined to the culvert opening and will be temporary. Such types of disturbances and their intensity levels are common throughout the range in which the local marine mammals occur. No breeding or nesting habitats for marine mammals and sea turtles exist in the Lagoon or Marine Stadium. To ensure that foraging marine mammals and sea turtles are not impacted by project activities, a qualified biological monitor is recommended to be present during construction activities that may have the potential to affect these species. Incorporation of the recommended mitigation measures below (MM BIO-6 through MM BIO-9) will ensure minimization of potential adverse impacts on marine mammal and sea turtle populations.

IMPACT MINIMIZATION

Culvert cleaning, demolition of the existing concrete culvert, and construction of the open channel will eliminate the tidal connection during those activities. This may lead to stagnation and decreased water quality that could affect habitat, fish, and wildlife. In order to provide a tidal connection during the construction period, the culvert cleaning, demolition, and open channel construction will be done

in sections/stages along their lengths between the Lagoon and Marine Stadium, and the channel will be periodically opened as discussed below. The current residence time of the water in the Lagoon is 8.5 days. Periodic opening of the culvert or other means of ensuring water exchange during construction is recommended to ensure tidal exchange, temperature and salinity regulation, and limit stagnation of the water in the Lagoon. Dissolved oxygen (DO) levels in the Lagoon are essential for biological resources. When levels of DO become too low, fish and many other aquatic organisms cannot survive. DO levels in the Lagoon should be maintained at a minimum of 3 milligrams per liter (mg/L) during summer months and a minimum of 5 mg/L during the rest of the year to maintain existing DO concentrations and survival of biological resources within the Lagoon. To maintain water quality in the Lagoon during construction, the culvert will be opened once every 2 weeks of construction during the period of the greatest tidal fluctuations within each 2-week interval for 2 to 3 days to allow for maximum exchange. If culvert opening is deemed impracticable, then other means of ensuring water exchange will be implemented. Culvert cleaning is expected to take place during summer months, at times when storm water runoff flows through the culvert are minimal. However, construction of the open channel may take place during wet months, which may require the channel to be opened more frequently. The culvert should be opened in anticipation of any storm events and should remain open for the duration of the storm or at least 2 to 3 days during wet weather. In addition to coordination with the tidal regime, two lake aerators will be installed and utilized during construction that closes off the culvert. Implementation of these water quality features will result minimization of potential adverse effects associated with stagnant water.

Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the local environment. Turbidity from dredging can interfere with filter-feeding subtidal organisms and introduce contaminants into areas not previously impacted. Implementation of BMPs, such as the use of silt curtains, would minimize impacts associated with turbidity and sediment redistribution and would be required for all construction phases to minimize impacts.

RECOMMENDED MITIGATION MEASURES

The following mitigation measures are recommended for marine biological resources.

MM BIO-1 The Director of Planning and Building shall ensure that a field survey to investigate the presence of the invasive algae *Caulerpa taxifolia* is conducted 30 to 60 days prior to commencement of construction, by qualified divers certified by the California Department of Fish and Game (CDFG) and National Marine Fisheries Service (NMFS) to conduct such surveys. The preconstruction *Caulerpa* surveys will be conducted according to the accepted criteria of the Southern California *Caulerpa* Action Team (SCCAT) for conducting surveys for the invasive algae and in accordance with the NMFS and CDFG *Caulerpa* survey protocols. In accordance with the recommendations of the SCCAT and according to the NMFS *Caulerpa* Control Protocol (Version 3, adopted March 12, 2007 [NMFS 2007]), a survey must be conducted in harbor areas that may be disturbed. In areas that are expected to be free of *Caulerpa*, such as Colorado Lagoon, a 20 percent visual Surveillance Level survey is required to prior to any dredging. The survey will also identify any other marine vegetation in the proposed construction area, including eelgrass. The City of Long Beach Director of Planning and Building, or his/her designee, shall transmit the survey results via *Caulerpa* Survey Reporting Form to NMFS and the CDFG within

48 hours of completion of the survey. If *Caulerpa* is identified in the project area, the City, NMFS, and the CDFG shall be notified within 24 hours of completion of the survey. In the event that *Caulerpa* is detected, disturbance shall not be conducted until such time as the infestation has been isolated and treated or the risk of spread from the proposed disturbing activity is eliminated in accordance with Section F of the *Caulerpa* Control Protocol.

MM BIO-2 The Director of Planning and Building shall ensure that a preconstruction eelgrass survey is conducted of the entire Colorado Lagoon (Lagoon) during the period of March through October. The survey is considered valid by the National Marine Fisheries Service (NMFS) for a period of no more than 60 days, with the exception that surveys conducted in August through October will be valid until the following March 1. Preconstruction survey results will be provided by the City of Long Beach Director of Planning and Building to NMFS and the California Department of Fish and Game (CDFG) in an appropriate data format for the information to be mapped on the project drawings.

MM BIO-3 The Director of Planning and Building shall ensure that a postconstruction survey is conducted within 30 days of the cessation of construction activities to determine the actual area of eelgrass affected for mitigation purposes. If loss of eelgrass is noted in the postdredge survey, the City of Long Beach will be required to mitigate the loss of eelgrass in accordance with the Southern California Eelgrass Mitigation Policy (SCEMP). As per the SCEMP Revision 11 (NMFS 1991), the loss of eelgrass habitat must be mitigated at a minimum 1.2 to 1 ratio.

MM BIO-4 The Director of Planning and Building shall ensure that eelgrass mitigation is initiated within 135 days of project inception; projects requiring more than 135 days to complete may result in additional mitigation. A mitigation plan with a schedule is required 30 days prior to any construction or dredge activities. The amount of mitigation necessary will be determined by the difference between the preconstruction and postconstruction survey.

MM BIO-5 The Director of Planning and Building shall ensure that an eelgrass transplant report is completed following construction (Initial Report) and monitoring reports are conducted at 6, 12, 24, 36, 48, and 60 months post-transplant. The Director of Planning and Building shall ensure that project achievement of specific milestones and criteria for success, as directed in the Southern California Eelgrass Mitigation Policy (SCEMP), along with guidelines for remedial actions, is documented. If the success criteria are not met, construction of a Supplementary Transplant Area and monitoring, for an additional five years may be required by the National Marine Fisheries Service (NMFS).

Prior to issuance of any demolition or construction permits, the City of Long Beach Director of Planning and Building shall verify that the following measures have been incorporated into project plans in order to further reduce any potential impacts to sea turtles and marine mammals. The following measures are part of the United States Army Corps of Engineers permitting process under Section 404 of the Clean Water Act, and are above and beyond those required under the California Environmental Quality Act (CEQA) to mitigate biological resource impacts to a less than significant level:

MM BIO-6 A qualified marine biologist shall be on site during the construction period to monitor the presence of sea turtles and marine mammals. The onsite biological monitor shall have the authority to halt construction operations if it is determined that sea turtles or marine mammals are present and may be adversely affected, and shall determine when construction operations can proceed.

MM BIO-7 Construction crews and work vessel crews shall be briefed on the potential for marine mammal and sea turtle species to be present, the legal protection of these species, and will be provided with identification characteristics of these animals.

MM BIO-8 In the event that a sea turtle is sighted within 500 meters (1640 feet)of the construction zone, all construction activity shall be temporarily stopped until the sea turtle(s) is safely outside the 500 meter buffer zone. In the event that a marine mammal is sighted within 500 meters of the construction zone, all construction activity shall be temporarily stopped until the marine mammal(s) is safely outside the 500 meter buffer zone. The onsite biological monitor shall have the authority to halt construction operation and shall determine when construction operations can proceed.

MM BIO-9 The biological monitor shall prepare an incident report of any marine mammal or sea turtle activity in the project area and shall advise the construction manager to have his crews be aware of the potential for additional sightings. The report shall be provided within 24 hours to the CDFG and the NMFS.

REFERENCES

Allen, L. G. 1976. Additions to the list of fish species known from Alamitos Bay, California, based on studies in Colorado Lagoon. Calif. Fish and Game. 62(4):310-314.

Allen, L.G. and M.H. Horn. 1975. Abundance, diversity and seasonality of fishes in Colorado Lagoon, Alamitos Bay, California. Estuarine and Coastal Mar. Sci. 3:371-380.

Chambers Group, Inc. 2004. Habitat assessment for the Colorado Lagoon restoration feasibility study for the City of Long Beach. Prepared for Moffat and Nichol, Long Beach, CA. 25 p. plus appendices.

Chavez, F.P., J. Ryan, S.E. Lluch-Cota, and M. Ñiquen C., From anchovies to sardines and back: multidecadal change in the Pacific Ocean. Science. Vol 299. 10 January 2003.

Coastal Resources Management (CRM). 2007. Alamitos Bay Marina Renovation Project Marine Biological Impact Assessment.

County of Los Angeles. 2007. Termino Avenue Drain Draft Environmental Impact Report, Prepared by EDAW, Inc., Los Angeles, CA.

Jensen, G.C. 1995. Pacific Coast Crabs and Shrimps. Sea Challengers, Monterey, CA.

LSA Associates, Inc. 2008. Biological Resources Assessment for the Colorado Lagoon Improvement Project. Prepared for the City of Long Beach, Los Angeles County, CA.

Los Angeles Region, California Regional Water Quality Control Board. 1994. Water quality control plan, Los Angeles Region. Basin Plan for the coastal watershed of Los Angeles and Ventura counties.

MBC Applied Environmental Sciences. 2002. AES Huntington Beach L.L.C. Generating Station - Endangered Species Act - Section 10 Application for Sea Turtle Incidental Take Permit. Prepared for AES Huntington Beach L.L.C, Huntington Beach, CA. 16 p. plus attachment.

Morris, R.H., D.P. Abbott, and E.C. Haderlie, eds., 1980. Intertidal invertebrates of California. Stanford University Press, Stanford, CA. 690p

National Marine Fisheries Service 1991. Southern California Eelgrass Mitigation Policy. Revision 11. Southwest Regional Office. Adopted July 31, 1991.

National Marine Fisheries Service. 2007. *Caulerpa* Control Protocol. Version 3. Southwest Regional Office. Adopted March 12, 2007.

U.S. Department of the Navy, Southwest Division (USDoN, SWDIV). 1999. San Diego Bay Integrated Natural Resources Management Plan, and San Diego Unified Port District Public Draft. September 1999. San Diego, CA. Prepared by Tierra Data Systems, Escondido, CA.

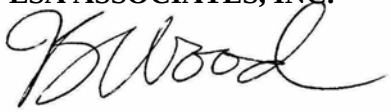
Zedler, J.B., C. S. Nordby, and B.E. Kus 1992. The Ecology of Tijuana River Estuary: A National Estuarine Research Reserve. NOAA Office of Coastal Resource Management, Sanctuaries and Reserves Division, Washington, D.C.

Zedler, J. B. 2000. Handbook for Restoring Tidal Wetlands. CRC Press, Boca Raton. 439 p.

LSA is pleased to have been able to work with you on this project. If you have any questions or comments, please contact me at (760) 531-5471 or at brianna.wood@lsa-assoc.com.

Sincerely,

LSA ASSOCIATES, INC.



Brianna Wood
Attachments: A: NMFS Listed Species
B: Federal Register Notice for NMFS Species of Concern

APPENDIX F

CULTURAL RESOURCES TECHNICAL MEMO

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ROCKLIN
SAN LUIS OBISPO

February 21, 2008

Angela Reynolds
City of Long Beach
Planning and Building Department
333 W. Ocean Boulevard, 5th Floor
Long Beach, CA 90802

Subject: Results of the Cultural Resources Assessment for the Colorado Lagoon Restoration Project, City of Long Beach, Los Angeles County, California

Dear Ms. Reynolds:

LSA Associates, Inc. (LSA) is pleased to submit the results of the cultural resources assessment for the Colorado Lagoon (Lagoon) Restoration Project located in the City of Long Beach (City), Los Angeles County, California. This assessment addresses the requirements of the California Environmental Quality Act (CEQA) (as amended January 1, 2007); Public Resources Code (PRC), Division 13 (Environmental Quality), Chapter 2.6 §21083.2 (Archaeological Resources) and §21084.1 (Historical Resources); and the Guidelines for CEQA (as amended July 11, 2006), California Code of Regulations (CCR) Title 14, Chapter 3, Article 5 §15064.5 (Determining the Significance of Impacts on Historical and Unique Archaeological Resources).

METHODS

Record Search

On September 27, 2007, a record search was conducted at the South Central Coastal Information Center of the California Historical Resources Information System, located at California State University, Fullerton. It included a review of all recorded cultural resources located within a 0.25-mile radius of the project area (Figure 1; all figures attached), as well as a review of known cultural resource survey and excavation reports. In addition, the California Points of Historical Interest (PHI), California Historical Landmarks (CHL), California Register of Historical Resources (California Register), National Register of Historic Places (National Register), and California State Historic Resources Inventory (HRI) listings were reviewed. LSA also reviewed the following historical maps of the project area: the United States Geological Survey (USGS) *Downey, California* 15-minute topographic quadrangle (1896 and 1942) and the USGS *Long Beach, California* 6-minute topographic quadrangle (1932). Several historical aerials of the project location were also reviewed (Figures 2 through 4).

Survey

On November 8, 2007, and February 12, 2008, an archaeological survey was conducted by LSA archaeologist Natalie Lawson. She completed the survey by walking parallel transects spaced by 10 meters across the project area until the entire project area, including all open space around the Lagoon as well as all open space south of the Lagoon to Eliot Street, had been surveyed. Soil profiles and rodent backdirt were examined for evidence of cultural remains. Photographs were taken of the surveyed area as well as the surrounding areas, including the Long Beach Marine Stadium (Marine Stadium).

Native American Consultation

Native American consultation was conducted by the City as required by Senate Bill 18 (Burton, SB 18), following the guidelines of the California Office of Planning and Research (OPR, November 14, 2005). Written in 2004, SB 18 addresses the potential environmental impact of projects on California Native American Cultural Places. SB 18 requires planning agencies such as the City to consult with California Native American tribes during the preparation, updating, or amendment of General/Specific Plans. The purpose of the consultation is to identify and preserve specified places, features, and objects located within the City's jurisdiction that have a unique and significant meaning to California Native Americans.

Consultation was initiated in November 2007 by the City in a letter to the Native American Heritage Commission (NAHC). The letter requested a search of the Sacred Lands File (SLF) to determine whether cultural or traditional resources significant to a California Native American Tribe are present in the project area. In a letter response dated November 15, 2007, the NAHC stated that the results of the SLF search were negative. However, the NAHC recommended that seven groups be contacted that may have knowledge of cultural resources that could be affected by the project. The City contacted each group via certified letter dated December 10, 2007. At the request of the City, follow-up telephone calls were made by LSA to the seven groups to ensure that their input regarding the project would be included. Details of the consultation are provided in Attachment A.

RESULTS

Record Search

Five studies have been conducted within a 0.25-mile radius of the project area; however, none of these studies included any portion of the project area, and the project area has never been surveyed for cultural resources. Seven resources have been identified within the 0.25-mile radius of the project area, including six archaeological sites and one historical resource. None of the archaeological sites are located within the project area; however, one historical resource is located partially within the project area. This resource is Marine Stadium (CA-LAN-056). The stadium is listed on the California Register, the CHL (No. 1014), and the PHI (No. 19-186115). Marine Stadium was evaluated for historical significance and was determined to be a significant Point of Historical Interest in 1993.

The Lagoon and Marine Stadium are tidal water bodies located in the southwestern portion of the City. They lie northwest of the mouth of the San Gabriel River and north of Alamitos Bay. The

Lagoon was once a part of the historic Los Cerritos Wetlands. In 1923 the low-lying tidelands of Alamitos Bay were dredged to form the Lagoon and Marine Stadium, which were used for recreational rowing. A review of historical aerials of the project area revealed that extensive dredging occurred within the project area in the late 1920s (Figures 2 and 3). The City then purchased the Lagoon area and Recreation Park in the 1920s through general revenue bond funding.

In 1932, the Los Angeles Olympic Committee chose the Lagoon for diving trials. High diving was performed from a three-story structure that was floating in the Lagoon. To prepare for the diving trials, the Lagoon was separated from Marine Stadium by a tide gate, which was installed to maintain adequate diving depth in the Lagoon.

The 1932 Olympics also utilized Marine Stadium for rowing events. During these games, the United States rowing team won the gold medal in Marine Stadium. In 1968 the City remolded Marine Stadium for the Olympic rowing and canoeing team trials. The boathouse that was used during the 1932 Olympics still remains (located on the southeast corner of E. Colorado and Neito Avenue). This building is noteworthy due to the Olympic history; however, it has been extensively remodeled and is not listed as a historical landmark.

Also, in the late 1960s the area between what is now the north end of Marine Stadium and the south end of the Lagoon was filled, and the existing underground box culvert was constructed (Figure 4). This was part of the construction for the then-proposed Pacific Coast Freeway and further separated Colorado Lagoon from Marine Stadium. This “filled” area is now Marina Vista Park.

Despite the fill, which relocated the Olympic course’s finish line, Marine Stadium still provides 2,000 meters (m) of straight water, which is the standard sprint distance for national and international rowing. Marine Stadium is the only rowing venue specifically built for the sport in the United States and it continues to be a center for training United States Olympic Rowing Teams. In 1984, the Women’s Olympic Sculling trials were held in the Marine Stadium. Marine Stadium is also the location from which aviators Clyde Schlieper and Wes Carroll set off when they set a world record for longest sustained flight (30 days) in 1939. In addition, Marine Stadium is significant because it and the Los Angeles Coliseum are the only two surviving 1932 Olympic structures. For these reasons, Marine Stadium was designated a California Registered Historical Landmark (#1014) on April 29, 1995.

Survey

No cultural resources were identified during the survey. Soil in the project area is loamy sand. Marine shell was observed over the majority of the project area and appears to be the result of extensive dredging and filling, which is consistent with the historical aerials. Although the Colorado Lagoon Restoration Project and several of the project alternatives involve developing infrastructure to improve the tidal flows between the Lagoon and Marine Stadium, a Point of Historical Interest, the proposed project will not adversely affect the historical significance or continued uses of the Stadium.

Native American Consultation

A letter response dated January 4, 2008, was received from Robert Dorame of the Gabrielino Tongva Indians of California Tribal Council. Mr. Dorame stated that the Tribe has information indicating the area is sensitive for cultural resources. He recommended Tribal involvement and monitoring during all phases of the project and that the City have a treatment plan in place should ancestral remains be encountered.

The City also received a letter dated January 27, 2008 from Qun-tan Shup, Owl Clan. The letter expressed concern for the Chumash sites in the area and requested involvement in any future meetings regarding the project, as well as a specific meeting with the City if no other meetings were formally scheduled. Per City direction, LSA attempted to contact Mr. Shup by telephone on February 8 and 14, 2008. Voice messages were left each time requesting that the tribe return the calls to elaborate on their concerns, and so that more information could be provided about the current condition of the project area. To date, no response has been received.

On behalf of the City, LSA made one round of follow-up telephone calls to the remaining five Tribes. Ron Andrade of the Los Angeles City/County Native American Indian Commission deferred comment to Anthony Morales of the Gabrieleno/Tongva San Gabriel Band of Mission Indians. Mr. Morales responded that the Tribe considers the area sensitive for cultural resources and recommends monitoring by an archaeologist and Native American during project construction. Roberta Cordero of the Coastal Band of the Chumash Nation recommended that Darlene Hall, the spokesperson for cultural resources, be contacted. Ms. Hall stated that the project is outside of the Tribe's traditional use area and deferred to the recommendations of local Tribes. Messages were left for Cindi Alvitre, Ti'At Society; and John Tommy Rosas, Tongva Ancestral Territorial Tribal Nation, requesting that they return the call or contact the City should they have any concerns about the project impacting cultural resources. For additional details regarding the Native American consultation please see Attachment A.

RECOMMENDATIONS

Based on the results of the record search and field survey, LSA recommends that no further cultural resources studies or monitoring by an archaeologist be performed. However, in the event that archaeological resources are encountered during construction-related ground-disturbing activities, a qualified archaeologist should be contacted to assess the find and determine appropriate mitigation measures. Recommendations by two Tribes for construction monitoring have also been made to the City as a result of the SB 18 consultation detailed above.

If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be Native American, the County Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours

of notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

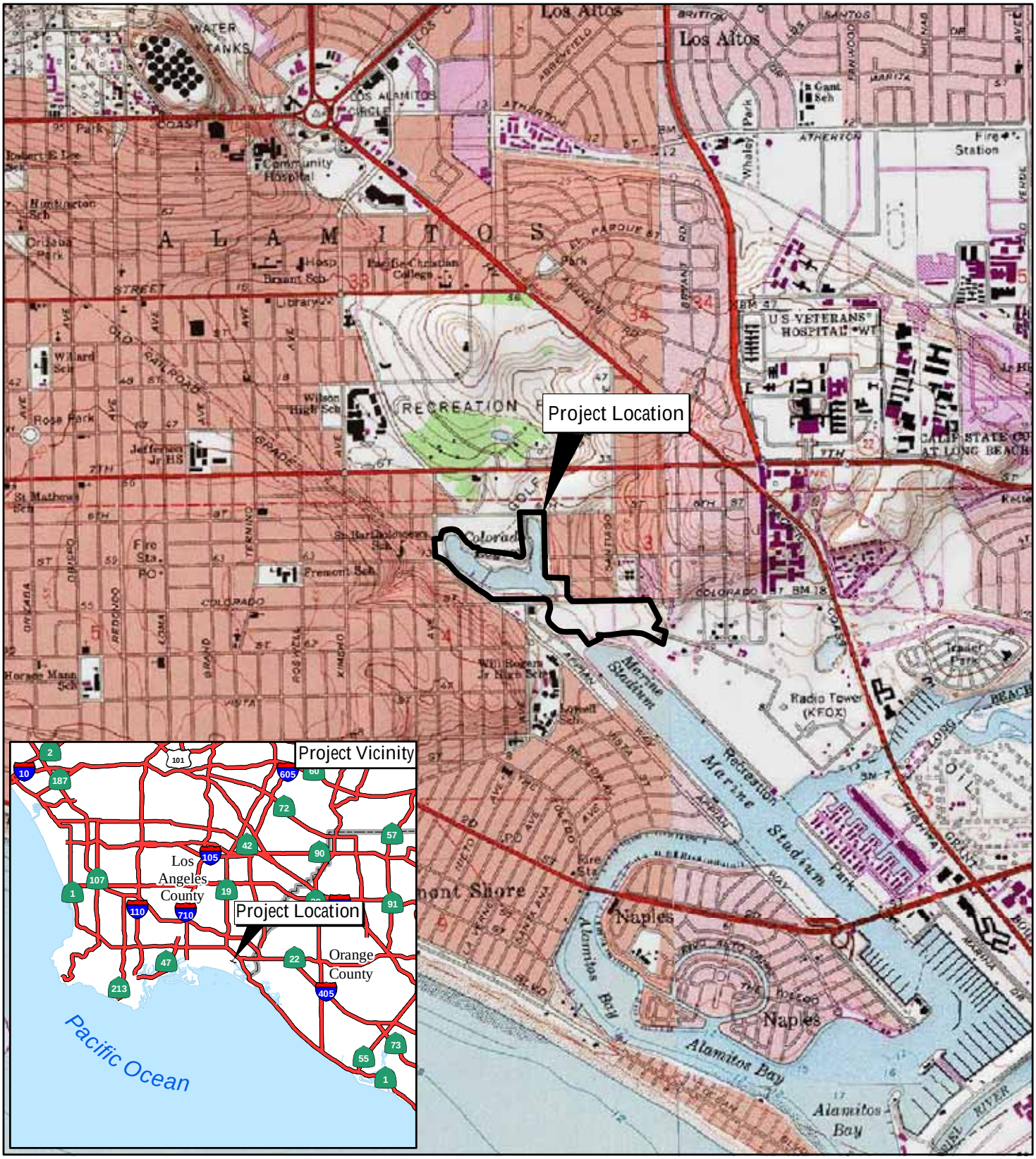
LSA is pleased to have been able to work with you on this project. If you have any questions or comments, please contact me at (949) 553-0666 or at nat.lawson@lsa-assoc.com.

Sincerely,

LSA ASSOCIATES, INC.

Natalie Lawson, M.A., RPA
Cultural Resources Manager

Attachments: Figures (4)
A: Native American Consultation



LSA

FIGURE 1

LEGEND

Project Boundary

N

0 1,000 2,000 Feet

Colorado Lagoon Restoration Project

Project Location Map

SOURCE: USGS 7.5' QUAD - Long Beach ('81); CALIF.

I:\clb0702\GIS\FIGURE_1.mxd (12/5/2007)

LSA

FIGURE 2

Colorado Lagoon

Historic Aerial of the Colorado Lagoon, 1928

I:\CLB0702\G\Aerial-1928.cdr (12/3/07)

LSA

FIGURE 3

Colorado Lagoon

Historic Aerial of the Colorado Lagoon, 1947

LSA

FIGURE 4

Colorado Lagoon

Historic Aerial of the Colorado Lagoon, 1968

ATTACHMENT A

NATIVE AMERICAN CONSULTATION

SENATE BILL 18 (SB 18) NATIVE AMERICAN CONSULTATION RECORD

Proposed Colorado Lagoon Restoration Project, City of Long Beach, Los Angeles County, California

Groups Contacted	Date City Sent Letter to Tribes	Date Response from Tribes Received by City	Date and Results of LSA Follow-up Telephone Calls
LA City/County Native American Indian Commission Ron Andrade, Director	12/10/07	No response received.	1/08/08: Mr. Andrade has reviewed the information sent by the City and will defer comment to Anthony Morales, Gabrieleno/Tongva San Gabriel Band of Mission Indians, Chairperson. Please see below.
Owl Clan Qun-tan Shup Chumash	12/10/07	1/27/08: A letter was received by the City. The letter stated that the Tribe has concerns regarding the Chumash sites in the project area, and requested involvement in any future meetings regarding the project. If no future meetings are scheduled, the tribe requested a specific meeting with the City.	1/08/08: A voice mail was left for Mr. Shup asking that he please respond should the Tribe have concerns about cultural resources being impacted by this project. 2/08/08 and 2/14/08: Per City direction, two attempts were made to contact Mr. Shup in response to the January 27, 2008 letter. Voice messages were left each time requesting that he return the calls to elaborate on the Tribe's concerns and so that more information could be provided about the current condition of the project area. To date, no response has been received.
Ti'At Society Cindi Alvitre Gabrielino	12/10/07	No response received.	1/08/08: A voice mail was left for Ms. Alvitre asking that she please respond should the Tribe have concerns about cultural resources being impacted by this project.
Tongva Ancestral Territorial Tribal Nation John Tommy Rosas, Tribal Administrator Gabrielino Tongva	12/10/07	No response received.	1/08/08: A voice mail was left for Mr. Rosas asking that he please respond should the Tribe have concerns about cultural resources being impacted by this project.
Gabrieleno/Tongva San Gabriel Band of Mission Indians Anthony Morales, Chairperson Gabrielino Tongva	12/10/07	No response received.	1/08/08: A voice mail was left for Mr. Morales asking that he please respond should the Tribe have concerns about cultural resources being impacted by this project. 1/09/08: Mr. Morales returned the call to say that the Tribe considers the area to be sensitive for cultural resources, and recommends monitoring by a Native American and archaeologist during construction.
Coastal Band of the Chumash Nation Roberta Cordero Chumash	12/10/07	No response received.	1/08/08: Ms. Cordero referred consultation to Darlene Hall, the person who handles cultural resource issues for the Tribe. Ms. Hall stated that the area is outside of her group's traditional boundaries, and she will defer to the recommendation of local Tribal groups.

Groups Contacted	Date City Sent Letter to Tribes	Date Response from Tribes Received by City	Date and Results of LSA Follow-up Telephone Calls
Gabrielino Tongva Indians of California Tribal Council Robert Dorame, Tribal Chair/Cultural Resources Gabrielino Tongva	12/10/07	1/04/08: A letter was received from Mr. Dorame. The letter stated that the Tribe has information indicating the area is sensitive for cultural resources. It recommended Tribal involvement and monitoring during all phases of the project, and also that the City have a treatment plan in place should ancestral remains be encountered. Please see attached letter.	

Robert F. Dorame
Tribal Chair/Cultural Resources

Gabrielino Tongva
Indians of California
Tribal Council
5450 Slauson avenue
Suite 151 PMB
Culver City, CA 90230
562-761-6417
gtongva@verizon.net

January 4, 2008

Craig Chalfant
Planner
City of Long Beach
Department of Planning and Building
333 W. Ocean Blvd, 5th Floor
Long Beach, CA 90802

Dear Mr. Chalfant:

Thank you so much for forwarding a copy of the Initial Study for the Colorado Lagoon Restoration Project.

I have researched the site location and have verified the existence of an occupational site, LA 5869, within the boundaries of ½ mile that may be impacted by the project. In addition, I recently surveyed the golf course and surrounding land located due north of the proposed project site resulting in visible surface midden including pectin, cockle and oyster shells spread over a large area that are indicative of Indian habitation. As you probably know, estuaries were a typical source of reliable food for the early inhabitants along the California coastline.

We recommend that a member of our tribe participate in any survey work and provide monitoring services during any soil disturbances that may impact this site as well as any other as yet unknown sites that may be uncovered during the development of this project.

Further, as a Most Likely Descendant and a tribal elder with more than 30 years experience in cultural resources, I am concerned that the City be prepared to appropriately handle any ancestral remains that may be uncovered during this project. I have worked at many sites that did not become controversial because an appropriate treatment plan was in place from the beginning, thus avoiding problems due to our recommendations for re-internment with dignity.

Thank you again for the opportunity to comment on this project plan. If you have any questions or require further consultation, please contact me at 562-761-6417 or by email at gtongva@verizon.net.

Happy New Year.

Robert Dorame
Tribal Chair

OWL CLAN CONSULTANTS

805-472-9536
48825 Sapague Rd. Bradley Ca. 93426
MUPAKA@gmail.com

January 29, 2008

Angela Reynolds
Planning Officer
City of Long Beach
333 W. Ocean Boulevard, 5th floor
Long Beach, Ca. 90802

Subject: Colorado Lagoon Restoration Project

Dear Angela Reynolds,

This letter is in response to the public notice regarding the notice of intent to prepare a Draft Environmental Impact Report for the restoration project mentioned above.

Owl Clan Consultants are expressing concern for our Chumash Cultural sites, located in the proposed project area and up to a 5mile radius around the proposed project sites.

Please inform us of any meetings that occur in which we can formally discuss our concerns, or if no meetings are scheduled we can arrange to meet as soon as possible.

Thank you for your cooperation,

Owl Clan Consultants

CITY OF LONG BEACH

DEPARTMENT OF PLANNING & BUILDING

333 W. Ocean Blvd, 5th Floor Long Beach, CA 90802 (562) 570-6357 FAX (562) 570 -6068

COMPREHENSIVE & ENVIRONMENTAL PLANNING

December 10, 2007

Ron Andrade, Director
LA City/County Native American Indian Commission
3175 West 6th Street
Room 403
Los Angeles, CA 90020

RE: Sacred Lands File Search for Colorado Lagoon Restoration Project Site, Long Beach, California

Dear Mr. Andrade:

Attached is a copy of the Notice of Preparation/Initial Study for the Colorado Lagoon Restoration Project. The City of Long Beach, as Lead Agency for this project, has initiated an environmental review process in accordance with the California Environmental Quality Act (CEQA). The project will involve sediment removal and construction of an open channel between the Lagoon and Marine Stadium. Please notify us of any Traditional Cultural Properties (TCPs), Traditional Tribal Cultural Sites (TTCSs) and/or any sacred site that may be impacted by this project.

Thank you very much for your assistance. If you have any questions or comments, please feel free to call me at (562) 570-6368.

Sincerely,

Craig Chalfant
Planner

Attachment: Notice of Preparation/Initial Study

CITY OF LONG BEACH

DEPARTMENT OF PLANNING & BUILDING

333 W. Ocean Blvd, 5th Floor Long Beach, CA 90802 (562) 570-6357 FAX (562) 570 -6068

COMPREHENSIVE & ENVIRONMENTAL PLANNING

December 10, 2007

Owl Clan
Qun-tan Shup
48825 Sapaque Road
Bradley, CA 93426

RE: Sacred Lands File Search for Colorado Lagoon Restoration Project Site, Long Beach, California

Dear Mr. Shup:

Attached is a copy of the Notice of Preparation/Initial Study for the Colorado Lagoon Restoration Project. The City of Long Beach, as Lead Agency for this project, has initiated an environmental review process in accordance with the California Environmental Quality Act (CEQA). The project will involve sediment removal and construction of an open channel between the Lagoon and Marine Stadium. Please notify us of any Traditional Cultural Properties (TCPs), Traditional Tribal Cultural Sites (TTCSs) and/or any sacred site that may be impacted by this project.

Thank you very much for your assistance. If you have any questions or comments, please feel free to call me at (562) 570-6368.

Sincerely,

Craig Chalfant
Planner

Attachment: Notice of Preparation/Initial Study

CITY OF LONG BEACH

DEPARTMENT OF PLANNING & BUILDING

333 W. Ocean Blvd, 5th Floor Long Beach, CA 90802 (562) 570-6357 FAX (562) 570 -6068

COMPREHENSIVE & ENVIRONMENTAL PLANNING

December 10, 2007

Cindi Alvitre
Ti'At Society
6515 E. Seaside Walk
Suite C
Long Beach, CA 90803

RE: Sacred Lands File Search for Colorado Lagoon Restoration Project Site, Long Beach, California

Dear Ms. Alvitre:

Attached is a copy of the Notice of Preparation/Initial Study for the Colorado Lagoon Restoration Project. The City of Long Beach, as Lead Agency for this project, has initiated an environmental review process in accordance with the California Environmental Quality Act (CEQA). The project will involve sediment removal and construction of an open channel between the Lagoon and Marine Stadium. Please notify us of any Traditional Cultural Properties (TCPs), Traditional Tribal Cultural Sites (TTCSs) and/or any sacred site that may be impacted by this project.

Thank you very much for your assistance. If you have any questions or comments, please feel free to call me at (562) 570-6368.

Sincerely,

Craig Chalfant
Planner

Attachment: Notice of Preparation/Initial Study

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333 W. Ocean Blvd, 5th Floor Long Beach, CA 90802 (562) 570-6357 FAX (562) 570 -6068

COMPREHENSIVE & ENVIRONMENTAL PLANNING

December 10, 2007

John Tommy Rosas
Tribal Administrator
Tongva Ancestral Territorial Tribal Nation
4712 Admiralty Way
Suite 172
Marina Del Rey, CA 90292

RE: Sacred Lands File Search for Colorado Lagoon Restoration Project Site, Long Beach, California

Dear Mr. Rosas:

Attached is a copy of the Notice of Preparation/Initial Study for the Colorado Lagoon Restoration Project. The City of Long Beach, as Lead Agency for this project, has initiated an environmental review process in accordance with the California Environmental Quality Act (CEQA). The project will involve sediment removal and construction of an open channel between the Lagoon and Marine Stadium. Please notify us of any Traditional Cultural Properties (TCPs), Traditional Tribal Cultural Sites (TTCSs) and/or any sacred site that may be impacted by this project.

Thank you very much for your assistance. If you have any questions or comments, please feel free to call me at (562) 570-6368.

Sincerely,

Craig Chalfant
Planner

Attachment: Notice of Preparation/Initial Study

CITY OF LONG BEACH

DEPARTMENT OF PLANNING & BUILDING

333 W. Ocean Blvd, 5th Floor Long Beach, CA 90802 (562) 570-6357 FAX (562) 570 -6068

COMPREHENSIVE & ENVIRONMENTAL PLANNING

December 10, 2007

Anthony Morales
Chairperson
Gabrieleno/Tongva San Gabriel Band of Mission Indians
P.O. Box 693
San Gabriel, CA 91778

RE: Sacred Lands File Search for Colorado Lagoon Restoration Project Site, Long Beach, California

Dear Mr. Morales:

Attached is a copy of the Notice of Preparation/Initial Study for the Colorado Lagoon Restoration Project. The City of Long Beach, as Lead Agency for this project, has initiated an environmental review process in accordance with the California Environmental Quality Act (CEQA). The project will involve sediment removal and construction of an open channel between the Lagoon and Marine Stadium. Please notify us of any Traditional Cultural Properties (TCPs), Traditional Tribal Cultural Sites (TTCSs) and/or any sacred site that may be impacted by this project.

Thank you very much for your assistance. If you have any questions or comments, please feel free to call me at (562) 570-6368.

Sincerely,

Craig Chalfant
Planner

Attachment: Notice of Preparation/Initial Study

CITY OF LONG BEACH

DEPARTMENT OF PLANNING & BUILDING

333 W. Ocean Blvd, 5th Floor Long Beach, CA 90802 (562) 570-6357 FAX (562) 570 -6068

COMPREHENSIVE & ENVIRONMENTAL PLANNING

December 10, 2007

Roberta Cordero
Coastal Band of Chumash Nation
4454 La Paloma Road
Santa Barbara, CA 93105

RE: Sacred Lands File Search for Colorado Lagoon Restoration Project Site, Long Beach, California

Dear Ms. Cordero:

Attached is a copy of the Notice of Preparation/Initial Study for the Colorado Lagoon Restoration Project. The City of Long Beach, as Lead Agency for this project, has initiated an environmental review process in accordance with the California Environmental Quality Act (CEQA). The project will involve sediment removal and construction of an open channel between the Lagoon and Marine Stadium. Please notify us of any Traditional Cultural Properties (TCPs), Traditional Tribal Cultural Sites (TTCSs) and/or any sacred site that may be impacted by this project.

Thank you very much for your assistance. If you have any questions or comments, please feel free to call me at (562) 570-6368.

Sincerely,

Craig Chalfant
Planner

Attachment: Notice of Preparation/Initial Study

CITY OF LONG BEACH

DEPARTMENT OF PLANNING & BUILDING

333 W. Ocean Blvd, 5th Floor Long Beach, CA 90802 (562) 570-6357 FAX (562) 570 -6068

COMPREHENSIVE & ENVIRONMENTAL PLANNING

December 10, 2007

Robert Dorame
Tribal Chair/Cultural Resources
Gabrielino Tongva Indians of California Tribal Council
5450 Slauson Avenue
Suite 151 PMB
Culver City, CA 90230

RE: Sacred Lands File Search for Colorado Lagoon Restoration Project Site, Long Beach, California

Dear Mr. Dorame:

Attached is a copy of the Notice of Preparation/Initial Study for the Colorado Lagoon Restoration Project. The City of Long Beach, as Lead Agency for this project, has initiated an environmental review process in accordance with the California Environmental Quality Act (CEQA). The project will involve sediment removal and construction of an open channel between the Lagoon and Marine Stadium. Please notify us of any Traditional Cultural Properties (TCPs), Traditional Tribal Cultural Sites (TTCSs) and/or any sacred site that may be impacted by this project.

Thank you very much for your assistance. If you have any questions or comments, please feel free to call me at (562) 570-6368.

Sincerely,

Craig Chalfant
Planner

Attachment: Notice of Preparation/Initial Study

Native American Contacts
Los Angeles County
November 15, 2007

LA City/County Native American Indian Comm
Ron Andrade, Director
3175 West 6th Street, Rm. 403
Los Angeles , CA 90020
(213) 351-5324
(213) 386-3995 FAX

Gabrieleno/Tongva San Gabriel Band of Mission Indians - Anthony Morales, Chairperson
PO Box 693 Gabrielino Tongva
San Gabriel , CA 91778
ChiefRBwife@aol.com
(626) 286-1632
(626) 286-1758 - Home
(626) 286-1262 Fax

Owl Clan
Qun-tan Shup
48825 Sapaque Road Chumash
Bradley , CA 93426
(805) 472-9536
(805) 835-2382 - CELL

Coastal Band of the Chumash Nation
Roberta Cordero
4454 La Paloma Road Chumash
Santa Barbara , CA 93105
roberta.cordero@gmail.com
805-681-9133

Ti'At Society
Cindi Alvitre
6515 E. Seaside Walk, #C Gabrielino
Long Beach , CA 90803
calvitre@yahoo.com
(714) 504-2468 Cell

Gabrielino Tongva Indians of California Tribal Council
Robert Dorame, Tribal Chair/Cultural Resources
5450 Slauson, Ave, Suite 151 PMB Gabrielino Tongva
Culver City , CA 90230
gtongva@verizon.net
562-761-6417 - voice
562-925-7989 - fax

Tongva Ancestral Territorial Tribal Nation
John Tommy Rosas, Tribal Adminstrator
4712 Admiralty Way, Suite 172 Gabrielino Tongva
Marina Del Rey , CA 90292
310-570-6567

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native American with regard to cultural resources for the proposed SCH#2007111034; CEQA Notice of Preparation (NOP; draft Environmental Impact Report (DEIR) for the Colorado Lagoon Restoration Project; City of Long Beach; Los Angeles County, California.